

ARMY FM 10-522 / AIR FORCE TO 13C7-2-1001

Airdrop of Supplies and Equipment

RIGGING POTABLE WATER



DEPARTMENTS OF THE ARMY AND THE AIR FORCE

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**HEADQUARTERS
DEPARTMENTS OF THE ARMY
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Washington, DC, 30 September 1993

**AIRDROP OF SUPPLIES AND EQUIPMENT
RIGGING POTABLE WATER**

This change adds the procedures for rigging water drums in A-22 containers and on a type V platform for low-velocity and LAPE airdrops. With this change, the C-5 aircraft may be used for low-velocity airdrop. See FM 10-500-2/TO 13C7-1-5 for guidance when rigging loads for the C-5 aircraft. Please make this change where it applies throughout the manual. Also with this change, the destruction notice shown below must be added to the cover of the basic manual.

FM 10-522/TO 13C7-2-1001, 3 June 1985, is changed as follows:

1. New or changed material is identified by a vertical bar in the margin opposite the changed material.
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<u>Remove pages</u>	<u>Insert pages</u>
i through viii	i through xii
1-1	1-1
	6-1 through 6-35
	7-1 through 7-34
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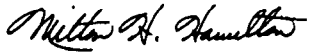
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HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE
Washington, DC, 3 June 1985

AIRDROP OF SUPPLIES AND EQUIPMENT RIGGING POTABLE WATER

Table of Contents

	Paragraph	Page
PREFACE		xi
CHAPTER 1 AIRDROP INFORMATION		
Description of Items	1-1	1-1
Special Considerations	1-2	1-1
CHAPTER 2 RIGGING SMALL CONTAINERS FOR FREE DROP		
Section I RIGGING TWENTY-FOUR 1-QUART PLASTIC CANTEENS		
Description of Load	2-1	2-1
Preparing Inner Container	2-2	2-1
Packaging Canteens	2-3	2-1
Reinforcing Inner Container	2-4	2-2
Preparing and Packing Outer Container	2-5	2-2
Marking Rigged Load	2-6	2-4
Equipment Required	2-7	2-4
Section II RIGGING TWENTY-FOUR 16-OUNCE CANS		
Description of Load	2-8	2-5
Reinforcing Packing Case	2-9	2-5
Positioning Honeycomb	2-10	2-6
Preparing and Packing Outer Container	2-11	2-6
Marking Rigged Load	2-12	2-8
Equipment Required	2-13	2-8

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	Paragraph	Page
Section III RIGGING FIFTY 10-OUNCE CANS		
Description of Load	2-14	2-8
Reinforcing Packing Case	2-15	2-8
Positioning Honeycomb	2-16	2-8
Preparing and Packing Outer Container	2-17	2-10
Marking Rigged Load	2-18	2-11
Equipment Required	2-19	2-11
CHAPTER 3 RIGGING MILK-DISPENSING CONTAINERS		
Section I RIGGING EIGHT MILK-DISPENSING CONTAINERS IN AN A-21 CARGO BAG		
Description of Load	3-1	3-1
Preparing Containers	3-2	3-1
Rigging Load	3-3	3-2
Closing Cargo Bag	3-4	3-4
Installing Parachute	3-5	3-4
Rigged Load Data	3-6	3-4
Equipment Required	3-7	3-4
Section II RIGGING 40 MILK-DISPENSING CONTAINERS IN AN A-22 CARGO BAG		
Description of Load	3-8	3-6
Preparing Containers	3-9	3-6
Rigging Load	3-10	3-6
Closing Cargo Bag	3-11	3-9
Installing Parachute	3-12	3-9
Rigged Load Data	3-13	3-9
Equipment Required	3-14	3-10
Section III RIGGING FOUR A-22 CARGO BAGS FOR LOW-VELOCITY AIRDROP		
Description of Load	3-15	3-11
Preparing Platform	3-16	3-11
Building and Placing Honeycomb Stacks	3-17	3-12
Preparing Load	3-18	3-12
Placing Load	3-19	3-12
Lashing Load	3-20	3-13
Installing Suspension Slings	3-21	3-16
Installing Cargo Parachutes	3-22	3-16
Installing Extraction System	3-23	3-16
Installing Release System	3-24	3-18
Placing Extraction Parachute	3-25	3-18
Marking Rigged Load	3-26	3-18
Equipment Required	3-27	3-18

	Paragraph	Page
Section IV RIGGING FOUR A-22 CARGO BAGS FOR LAPE AIRDROP		
Description of Load	3-28	3-21
Preparing Platform	3-29	3-21
Building and Placing Honeycomb Stacks	3-30	3-22
Preparing Load	3-31	3-22
Placing Front A-22 Cargo Bags	3-32	3-22
Lashing Front A-22 Cargo Bags	3-33	3-22
Placing Rear A-22 Cargo Bags	3-34	3-27
Lashing Rear A-22 Cargo Bags	3-35	3-28
Installing Attitude Control Bar (ACB)	3-36	3-31
Installing Extraction System	3-37	3-34
Determining Extraction Parachute Requirement	3-38	3-34
Marking Rigged Load	3-39	3-34
Equipment Required	3-40	3-34
CHAPTER 4 RIGGING 250-GALLON WATER DRUMS		
Section I RIGGING THREE 250-GALLON DRUMS ON 8-FOOT PLATFORM FOR LOW-VELOCITY AIRDROP		
Description of Load	4-1	4-1
Preparing Platform	4-2	4-1
Installing Suspension Slings and Positioning Drums	4-3	4-2
Lashing Drums	4-4	4-5
Safetying Suspension Slings	4-5	4-7
Stowing Cargo Parachutes	4-6	4-7
Installing Release System	4-7	4-7
Installing Extraction System	4-8	4-8
Placing Extraction Parachutes	4-9	4-8
Marking Rigged Load	4-10	4-8
Equipment Required	4-11	4-9
Section II RIGGING THREE 250-GALLON DRUMS ON 12-FOOT PLATFORM FOR LOW-VELOCITY AIRDROP		
Description of Load	4-12	4-10
Preparing Platform	4-13	4-11
Installing Suspension Slings and Positioning Drums	4-14	4-12
Lashing Drums	4-15	4-12
Preparing, Positioning, and Lashing Pumping Assembly	4-16	4-14
Safetying Suspension Slings	4-17	4-17
Stowing Cargo Parachutes	4-18	4-17
Installing Release System	4-19	4-18
Installing Extraction System	4-20	4-18
Placing Extraction Parachutes	4-21	4-18
Marking Rigged Load	4-22	4-18
Equipment Required	4-23	4-18

	Paragraph	Page
Section III RIGGING THREE 250-GALLON DRUMS FOR LAPE AIRDROP		
Description of Load	4-24	4-21
Preparing Platform	4-25	4-21
Positioning Straps and Honeycomb	4-26	4-22
Positioning Drums and Securing Deck Lashings	4-27	4-23
Lashing Drums	4-28	4-23
Installing Attitude Control Bar	4-29	4-26
Installing Extraction System	4-30	4-26
Stowing Discharge Hose	4-31	4-28
Placing Extraction Parachutes	4-32	4-28
Marking Rigged Load	4-33	4-28
Equipment Required	4-34	4-28
Section IV RIGGING FOUR 250-GALLON DRUMS FOR LAPE AIRDROP		
Description of Load	4-35	4-30
Preparing Platform	4-36	4-30
Positioning Straps and Honeycomb	4-37	4-30
Positioning Drums and Securing Deck Lashings	4-38	4-30
Lashing Drums	4-39	4-30
Installing Attitude Control Bar	4-40	4-30
Installing Extraction System	4-41	4-30
Stowing Discharge Hose	4-42	4-30
Placing Extraction Parachutes	4-43	4-30
Marking Rigged Load	4-44	4-34
Equipment Required	4-45	4-34
Section V RIGGING FIVE 250-GALLON DRUMS FOR LAPE AIRDROP		
Description of Load	4-46	4-36
Preparing Platform	4-47	4-36
Positioning Straps and Honeycomb	4-48	4-36
Positioning Drums and Securing Deck Lashings	4-49	4-36
Lashing Drums	4-50	4-36
Installing Attitude Control Bar	4-51	4-36
Installing Extraction System	4-52	4-36
Stowing Discharge Hose	4-53	4-36
Installing Extraction Parachutes	4-54	4-36
Marking Rigged Load	4-55	4-40
Equipment Required	4-56	4-40
Section VI RIGGING SIX 250-GALLON DRUMS FOR LAPE AIRDROP		
Description of Load	4-57	4-42
Preparing Platform	4-58	4-42
Positioning Straps and Honeycomb	4-59	4-42
Positioning Drums and Securing Deck Lashings	4-60	4-42

	Paragraph	Page
Lashing Drums	4-61	4-42
Installing Attitude Control Bar	4-62	4-42
Installing Extraction System	4-63	4-42
Stowing Discharge Hose	4-64	4-42
Installing Extraction Parachutes	4-65	4-42
Marking Rigged Load	4-66	4-47
Equipment Required	4-67	4-47
Section VII RIGGING 250-GALLON DRUMS WITH PUMPING ASSEMBLY FOR LAPE AIRDROP		
Description of Load	4-68	4-49
Preparing Assembly	4-69	4-49
Lashing Container	4-70	4-54
Marking Rigged Load	4-71	4-55
Equipment Required	4-72	4-55
CHAPTER 5 RIGGING 500-GALLON WATER DRUMS		
Section I RIGGING TWO 500-GALLON DRUMS FOR LOW-VELOCITY AIRDROP		
Description of Load	5-1	5-1
Preparing Platform	5-2	5-1
Installing Suspension Slings	5-3	5-1
Lashing Load	5-4	5-1
Safetying Suspension Slings	5-5	5-5
Stowing Cargo Parachutes	5-6	5-5
Installing Extraction System	5-7	5-5
Installing Release System	5-8	5-7
Positioning Extraction Parachute	5-9	5-7
Marking Rigged Load	5-10	5-7
Equipment Required	5-11	5-9
Stowing Pumping Assembly	5-12	5-10
Additional Equipment Required	5-13	5-10
Section II RIGGING THREE 500-GALLON DRUMS FOR LOW-VELOCITY AIRDROP		
Description of Load	5-14	5-13
Preparing Platform	5-15	5-13
Preparing and Placing Honeycomb Stack	5-16	5-13
Installing Suspension Slings	5-17	5-14
Lashing Drums	5-18	5-14
Safetying Suspension Slings	5-19	5-18
Stowing Cargo Parachutes	5-20	5-18
Installing Extraction System	5-21	5-22
Installing Release System	5-22	5-23

	Paragraph	Page
Positioning Extraction System	5-23	5-23
Marking Rigged Load	5-24	5-23
Equipment Required.....	5-25	5-24
Section III RIGGING TWO 500-GALLON DRUMS FOR LAPE AIRDROP		
Description of Load	5-26	5-26
Preparing Platform	5-27	5-26
Lashing Drums.....	5-28	5-27
Lashing Attitude Control Bar	5-29	5-28
Installing Extraction System	5-30	5-32
Placing Extraction Parachutes	5-31	5-32
Marking Rigged Load	5-32	5-32
Equipment Required.....	5-33	5-32
Section IV RIGGING THREE 500-GALLON DRUMS FOR LAPE AIRDROP		
Description of Load	5-34	5-35
Preparing Platform	5-35	5-35
Lashing Drums.....	5-36	5-35
Lashing Attitude Control Bar	5-37	5-43
Installing Extraction System	5-38	5-43
Placing Extraction Parachutes	5-39	5-43
Marking Rigged Load	5-40	5-43
Equipment Required.....	5-41	5-44
Section V RIGGING FOUR 500-GALLON DRUMS FOR LAPE AIRDROP		
Description of Load	5-42	5-45
Preparing Platform	5-43	5-45
Lashing Drums.....	5-44	5-46
Lashing Attitude Control Bar	5-45	5-56
Installing Extraction System	5-46	5-56
Placing Extraction Parachutes	5-47	5-56
Marking Rigged Load	5-48	5-56
Equipment Required.....	5-49	5-56
Section VI RIGGING FIVE 500-GALLON DRUMS FOR LAPE AIRDROP		
Description of Load	5-50	5-58
Preparing Platform	5-51	5-58
Lashing Drums.....	5-52	5-59
Lashing Attitude Control Bar	5-53	5-71
Installing Extraction System	5-54	5-71
Placing Extraction Parachutes	5-55	5-71
Marking Rigged Load	5-56	5-71
Equipment Required.....	5-57	5-72

	Paragraph	Page
Section VII RIGGING 500-GALLON DRUMS WITH PUMPING ASSEMBLY FOR LAPE AIRDROP		
Preparing Assembly	5-58	5-74
Lashing Container	5-59	5-74
Marking Rigged Load	5-60	5-74
Equipment Required	5-61	5-74
CHAPTER 6 RIGGING 55-GALLON COLLAPSIBLE WATER DRUMS		
Section I RIGGING DRUMS IN AN A-22 CARGO BAG FOR LOW-VELOCITY AIRDROP		
Description of Load	6-1	6-1
Preparing and Securing Load	6-2	6-1
Preparing Skidboard	6-3	6-8
Building and Positioning Honeycomb on Skidboard	6-4	6-8
Securing Skidboard to A-22 Cargo Bag	6-5	6-10
Installing Parachute	6-6	6-10
Equipment Required	6-7	6-10
Marking Rigged Load	6-8	6-10
Section II RIGGING DRUMS IN FOUR A-22 CARGO BAGS ON AN 8-FOOT TYPE V PLATFORM FOR LOW-VELOCITY AIRDROP		
Description of Load	6-9	6-11
Rigging Procedures	6-10	6-11
Section III RIGGING DRUMS IN FOUR A-22 CARGO BAGS ON A 12-FOOT, TYPE V PLATFORM FOR LAPE AIRDROP		
Description of Load	6-11	6-12
Preparing Platform	6-12	6-12
Pre-Positioned Deck Lashings	6-13	6-14
Building and Placing Honeycomb Stacks	6-14	6-15
Preparing Drums in A-22 Containers	6-15	6-16
Positioning the Load	6-16	6-16
Lashing A-22 Containers	6-17	6-19
Making and Installing Endboards	6-18	6-20
Lashing Load	6-19	6-22
Installing Attitude Control Bar	6-20	6-28
Installing Extraction System	6-21	6-31
Placing Extraction Parachutes	6-22	6-33
Marking Rigged Load	6-23	6-33
Equipment Required	6-24	6-34

	Paragraph	Page
CHAPTER 7 RIGGING 250-GALLON WATER DRUMS FOR LOW-VELOCITY AIRDROP ON A TYPE V PLATFORM		
Section I RIGGING THREE DRUMS ON AN 8-FOOT PLATFORM		
Description of Load	7-1	7-1
Preparing Platform	7-2	7-1
Preparing and Positioning Honeycomb	7-3	7-3
Installing Lifting Slings	7-4	7-4
Positioning and Lashing Drums Together	7-5	7-4
Lashing Drums to the Platform	7-6	7-6
Installing and Safetying Suspension Slings	7-7	7-9
Stowing Cargo Parachutes	7-8	7-10
Installing Parachute Release System	7-9	7-12
Installing Extraction System	7-10	7-13
Placing Extraction Parachute	7-11	7-15
Marking Rigged Load	7-12	7-15
Equipment Required	7-13	7-17
Section II RIGGING THREE DRUMS ON A 12-FOOT PLATFORM		
Description of Load	7-14	7-19
Preparing Platform	7-15	7-19
Preparing and Positioning Honeycomb	7-16	7-21
Installing Lifting Slings	7-17	7-21
Positioning and Lashing Drums Together	7-18	7-22
Lashing Drums to the Platform	7-19	7-23
Installing and Safetying Suspension Slings	7-20	7-25
Stowing Cargo Parachutes	7-21	7-26
Installing Parachute Release System	7-22	7-28
Installing Extraction System	7-23	7-29
Placing Extraction Parachute	7-24	7-31
Marking Rigged Load	7-25	7-31
Equipment Required	7-26	7-33
CHAPTER 8 RIGGING 250-GALLON WATER DRUMS FOR LAPE AIRDROP ON A TYPE V PLATFORM		
Section I RIGGING THREE DRUMS ON A 12-FOOT PLATFORM		
Description of Load	8-1	8-1
Preparing Platform	8-2	8-1
Preparing and Positioning Deck Lashings	8-3	8-3
Preparing and Positioning Honeycomb	8-4	8-4
Installing Lifting Slings	8-5	8-5
Positioning and Lashing Drums to Cargo Tie-Down Rings	8-6	8-5
Lashing Drums to the Platform	8-7	8-8
Installing Attitude Control Bar	8-8	8-12

	Paragraph	Page
Installing Extraction System	8-9	8-15
Rigging with Pumping Assembly	8-10	8-17
Placing Extraction Parachutes	8-11	8-18
Marking Rigged Load	8-12	8-18
Equipment Required	8-13	8-20
Section II RIGGING FOUR DRUMS ON A 16-FOOT PLATFORM		
Description of Load	8-14	8-21
Preparing Platform	8-15	8-21
Preparing and Positioning Deck Lashings	8-16	8-23
Preparing and Positioning Honeycomb	8-17	8-24
Installing Lifting Slings	8-18	8-25
Positioning and Lashing Drums to Cargo Tie-Down Rings	8-19	8-25
Lashing Drums to the Platform	8-20	8-29
Installing Attitude Control Bar	8-21	8-34
Installing Extraction System	8-22	8-37
Rigging with Pumping Assembly	8-23	8-39
Stowing Discharge Hose	8-24	8-39
Placing Extraction Parachutes	8-25	8-39
Marking Rigged Load	8-26	8-39
Equipment Required	8-27	8-41
Section III RIGGING FIVE DRUMS ON A 20-FOOT PLATFORM		
Description of Load	8-28	8-43
Preparing Platform	8-29	8-43
Preparing and Positioning Deck Lashings	8-30	8-45
Preparing and Positioning Honeycomb	8-31	8-47
Installing Lifting Slings	8-32	8-48
Positioning and Lashing Drums to Cargo Tie-Down Rings	8-33	8-48
Lashing Drums to the Platform	8-34	8-52
Installing Attitude Control Bar	8-35	8-58
Installing Extraction System	8-36	8-61
Rigging with Pumping Assembly	8-37	8-63
Stowing Discharge Hose	8-38	8-65
Placing Extraction Parachutes	8-39	8-65
Marking Rigged Load	8-40	8-65
Equipment Required	8-41	8-67
Section IV RIGGING SIX DRUMS ON A 24-FOOT PLATFORM		
Description of Load	8-42	8-69
Preparing Platform	8-43	8-69
Preparing and Positioning Deck Lashings	8-44	8-71
Preparing and Positioning Honeycomb	8-45	8-73
Installing Lifting Slings	8-46	8-74
Positioning and Lashing Drums to Cargo Tie-Down Rings	8-47	8-74

	Paragraph	Page
Lashing Drums to the Platform	8-48	8-78
Installing Attitude Control Bar	8-49	8-85
Installing Extraction System	8-50	8-88
Rigging with Pumping Assembly	8-51	8-90
Stowing Discharge Hose	8-52	8-92
Placing Extraction Parachutes	8-53	8-92
Marking Rigged Load	8-54	8-92
Equipment Required	8-55	8-94
CHAPTER 9 RIGGING 500-GALLON WATER DRUMS FOR LOW-VELOCITY AND LAPE AIRDROPS ON A TYPE V PLATFORM		
Rigging Information	9-1	9-1
Description of Drums	9-2	9-1
GLOSSARY		Glossary-1
REFERENCES		References-1

CHAPTER 1

Airdrop Information**1-1. Description of Items**

The description of the unrigged items covered in this manual is given below:

- a. Twenty-four 1-quart plastic canteens filled with 6 gallons of water weigh 54 pounds.
- b. One case of zip-top cans weighs 39 pounds.
- c. One case of 10-ounce cans weighs 44.25 pounds.
- d. The milk-dispensing container filled with 5 gallons of water weighs 42 pounds. It is 10 inches square and 17 inches high. Forty containers can be delivered in one A-22 cargo bag, eight containers can be delivered in one A-21 cargo bag, and 160 containers can be delivered in four A-22 cargo bags.
- e. The 55-gallon collapsible water drum is a durable, nonvented, cylindrically shaped, rubber container fitted with a faucet valve. Filled with 55 gallons of water, the drum weighs 400 pounds.
- f. The 250-gallon drum filled with 240 gallons of water weighs 2,197 pounds when rigged for

low-velocity airdrop. When rigged for LAPE airdrop, the drum is filled with 225 gallons of water and weighs 2,072 pounds. Each drum is 60 inches long and 40 inches in diameter. Empty, the drum weighs 205 pounds. A pumping assembly can be rigged with the load as an accompanying load.

g. The 500-gallon drum filled with 432 gallons of water weighs 3,835 pounds. It is 62 inches long and 53 inches in diameter. Empty, the drum weighs 250 pounds. A pumping assembly can be rigged with the load as an accompanying load.

1-2. Special Considerations

a. Components of the pumping assembly that have been used to deliver petroleum products must not be used to pump water for human use.

b. A copy of this manual must be available to the joint airdrop inspectors during the before- and after-loading inspections.

CHAPTER 2

Rigging Small Containers For Free Drop

Section I

RIGGING TWENTY-FOUR 1-QUART PLASTIC CANTEENS**2-1. Description of Load**

The twenty-four 1-quart plastic canteens are rigged inside two cardboard containers. Honeycomb is placed between the inner and outer containers.

2-2. Preparing Inner Container

a. Expand the 30-inch-long inner cardboard container. Close one end by folding the end flaps. Seal the closed end with 3-inch

tape. Make sure that the tape extends at least 6 inches down the sides of the container.

b. Expand the cardboard separator assembly.

2-3. Packaging Canteens

Check the canteens to make sure that the caps are tightly sealed. Package the canteens as shown in figure 2-1.

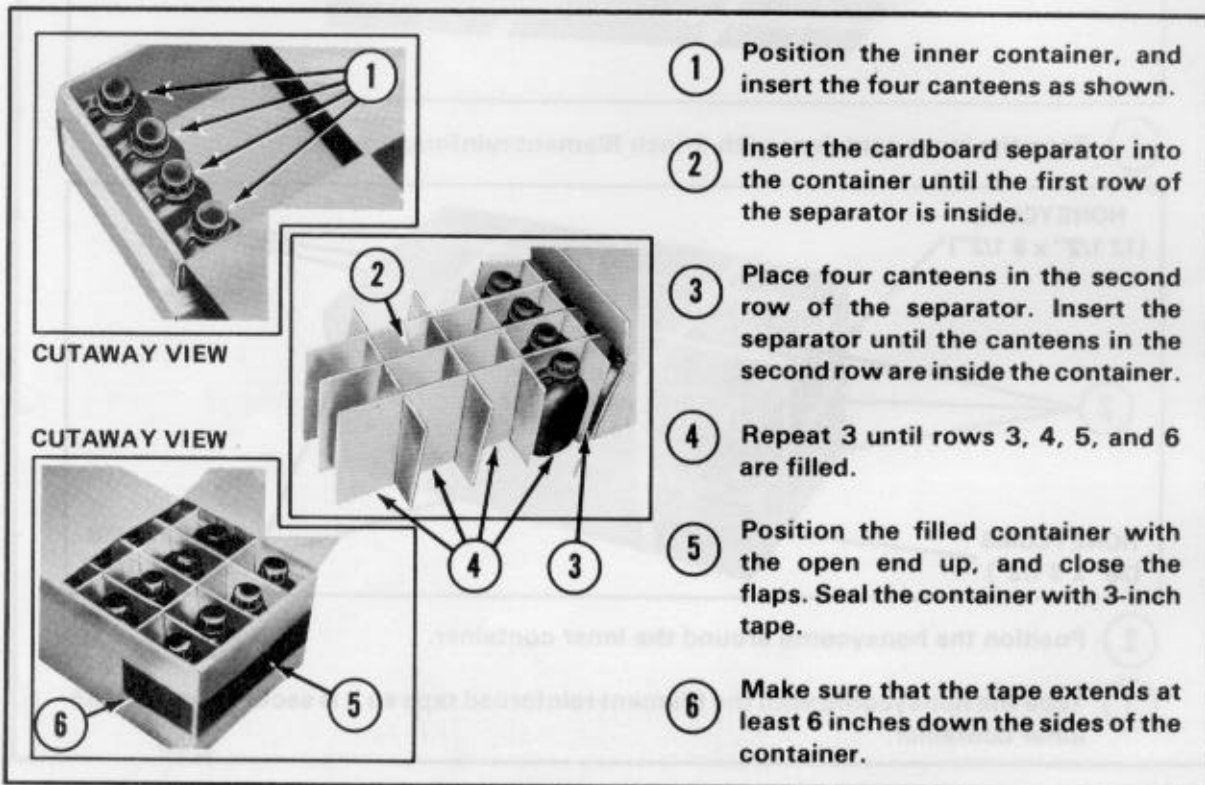


Figure 2-1. Canteens packed in the inner container.

2-4. Reinforcing Inner Container

Reinforce the inner container with 1-inch filament-reinforced tape and with two 12 1/2- by 8 1/2-inch, two 36- by 8 1/2-inch, and two 36- by 18 1/2-inch pieces of honeycomb. See figure 2-2.

2-5. Preparing and Packing Outer Container

Prepare and pack the outer container as shown in figures 2-3 and 2-4.

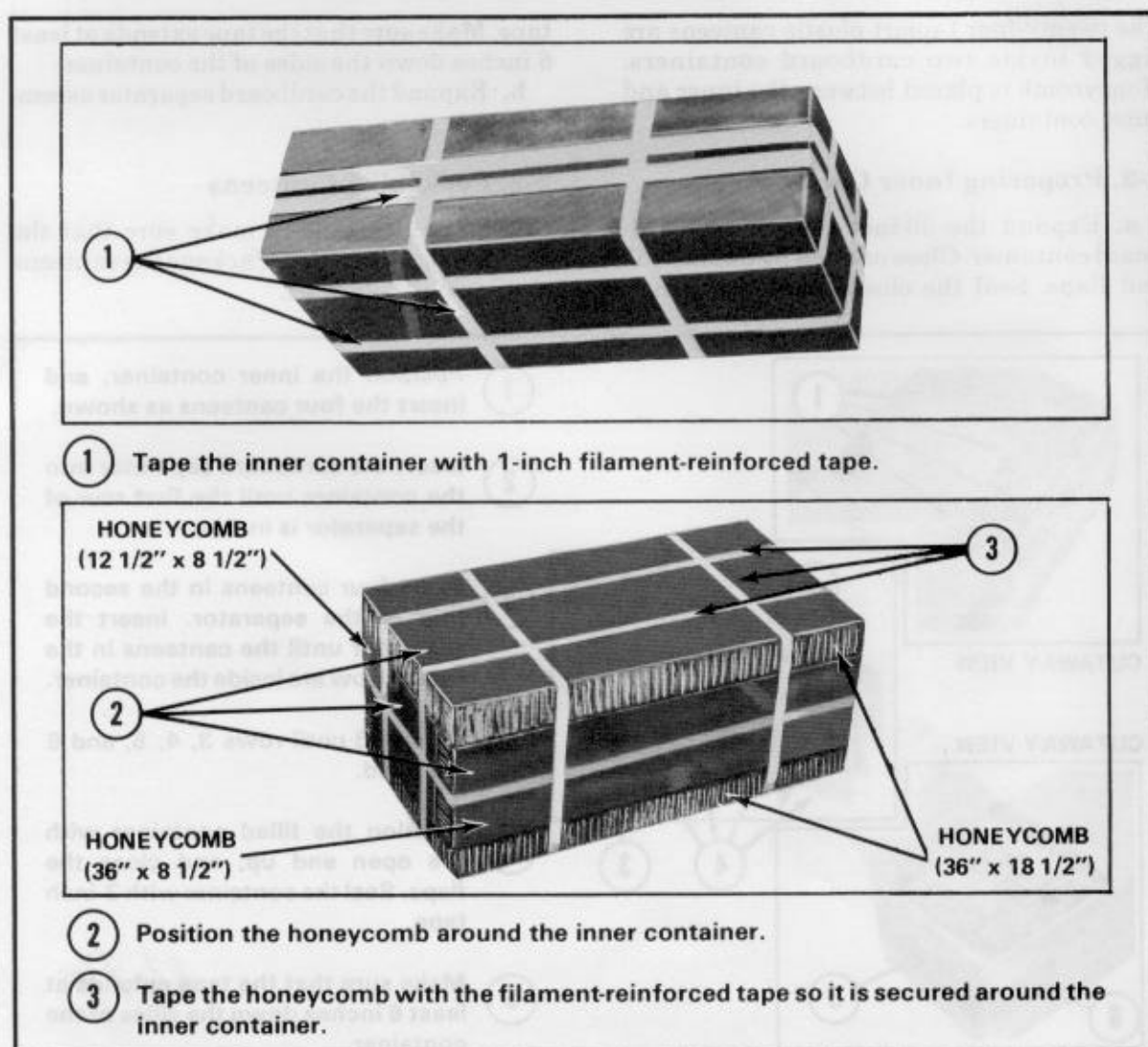


Figure 2-2. Inner container reinforced.

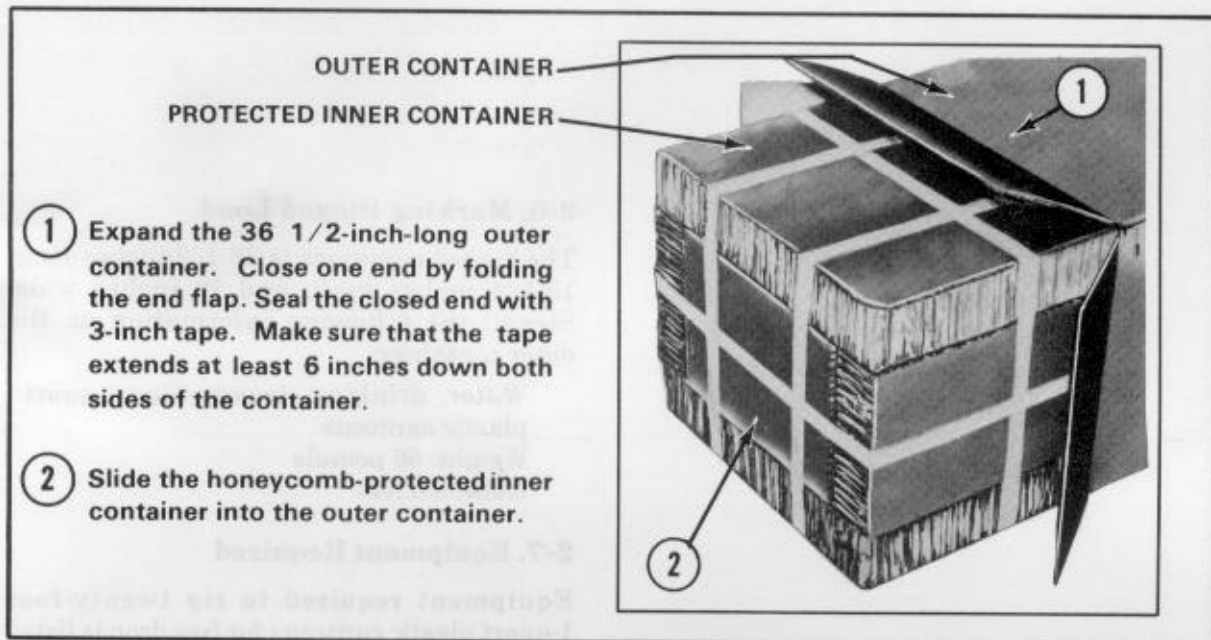


Figure 2-3. Outer container prepared.

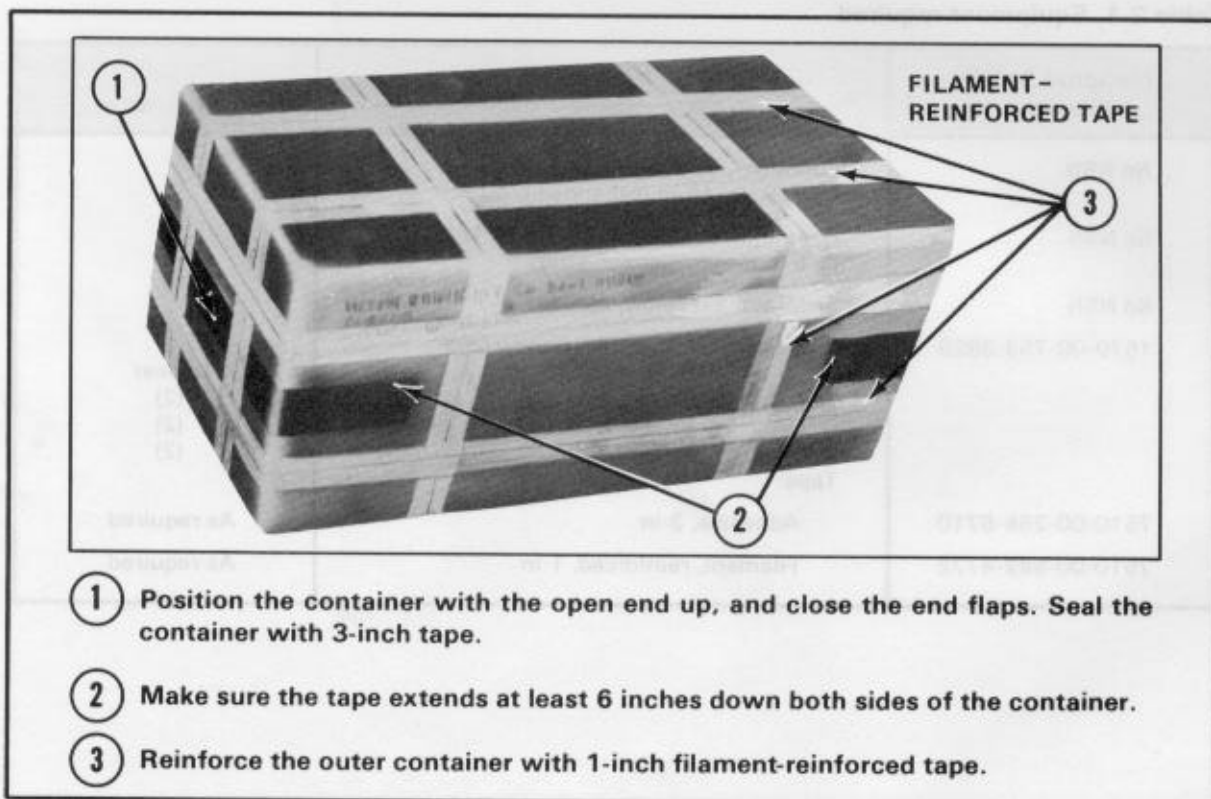


Figure 2-4. Twenty-four 1-quart plastic canteens packed.

2-6. Marking Rigged Load

The rigged container is 36 1/2 inches long, 15 1/4 inches high, and 19 inches wide. Stencil the following information on the outer container:

Water, drinking, twenty-four 1-quart
plastic canteens
Weight: 66 pounds
Cube: 8.3 feet

2-7. Equipment Required

Equipment required to rig twenty-four 1-quart plastic canteens for free drop is listed in table 2-1.

Table 2-1. Equipment required

National Stock Number	Item	Quantity
No NSN	Container, cardboard, 36 1/2- by 18 7/8- by 15-in (expanded size)	1
No NSN	Container, cardboard, 30- by 12 1/2- by 8 5/8-in (expanded size)	1
No NSN	Separator assembly, cardboard	1
1670-00-753-3928	Pad, energy-dissipating, honeycomb, 3- by 36- by 96-in: 12 1/2- by 8 1/2-in 36- by 8 1/2-in 36- by 18 1/4-in	1 sheet (2) (2) (2)
7510-00-266-6710	Tape: Adhesive, 3-in	As required
7510-00-582-4772	Filament, reinforced, 1-in	As required

Section II

RIGGING TWENTY-FOUR 16-OUNCE CANS**2-8. Description of Load**

One case of twenty-four 16-ounce zip-top cans of water is rigged in a cardboard container. Honeycomb is placed between the case and outer container.

2-9. Reinforcing Packing Case

Reinforce the packing case with 1-inch filament-reinforced tape as shown in figure 2-5.

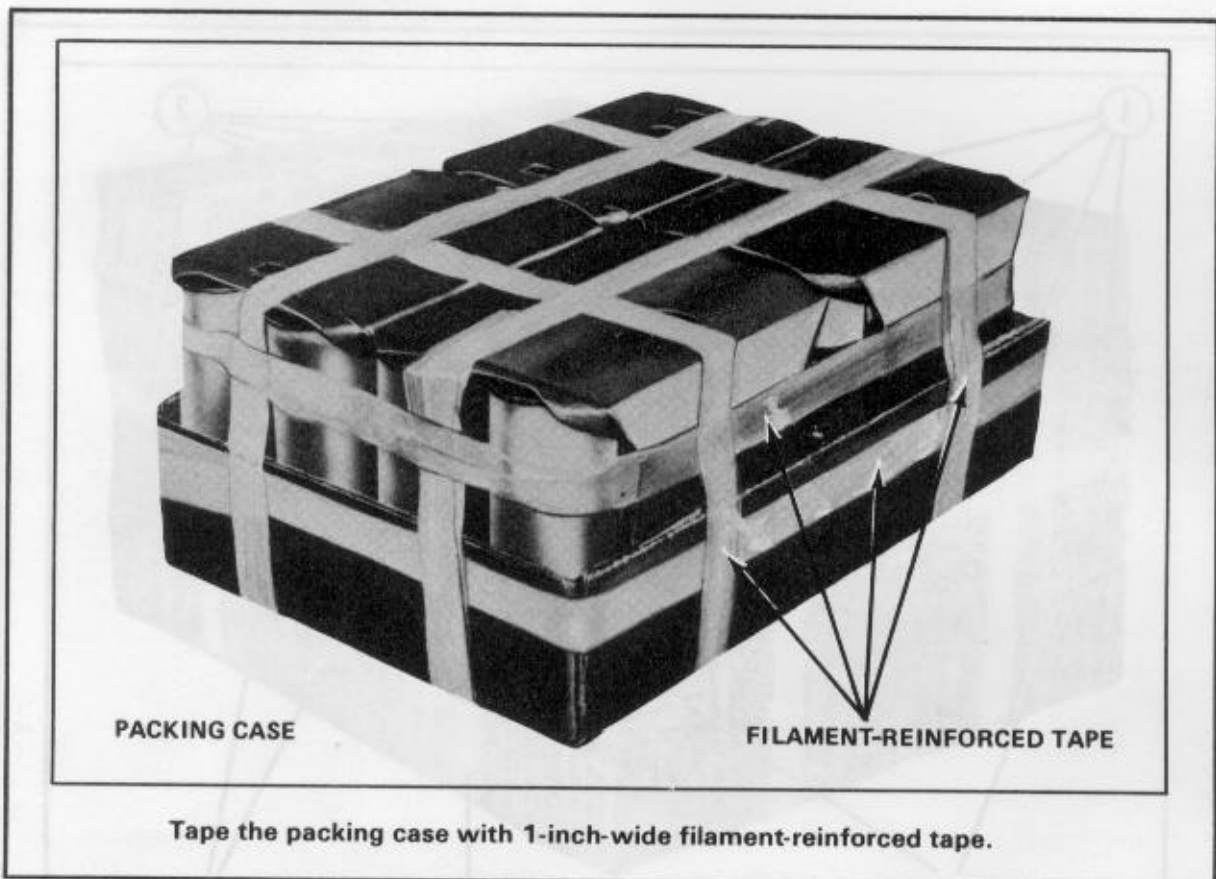


Figure 2-5. Packing case reinforced.

2-10. Positioning Honeycomb

Position two 6 1/2-by 22-inch, two 17 3/4-by 22-inch, and two 11 1/2-by 6 1/2-inch pieces of honeycomb around the packing case as shown in figure 2-6. Secure the honeycomb with 1-inch filament-reinforced tape.

2-11. Preparing and Packing Outer Container

Prepare and pack the outer container as shown in figures 2-7 and 2-8.

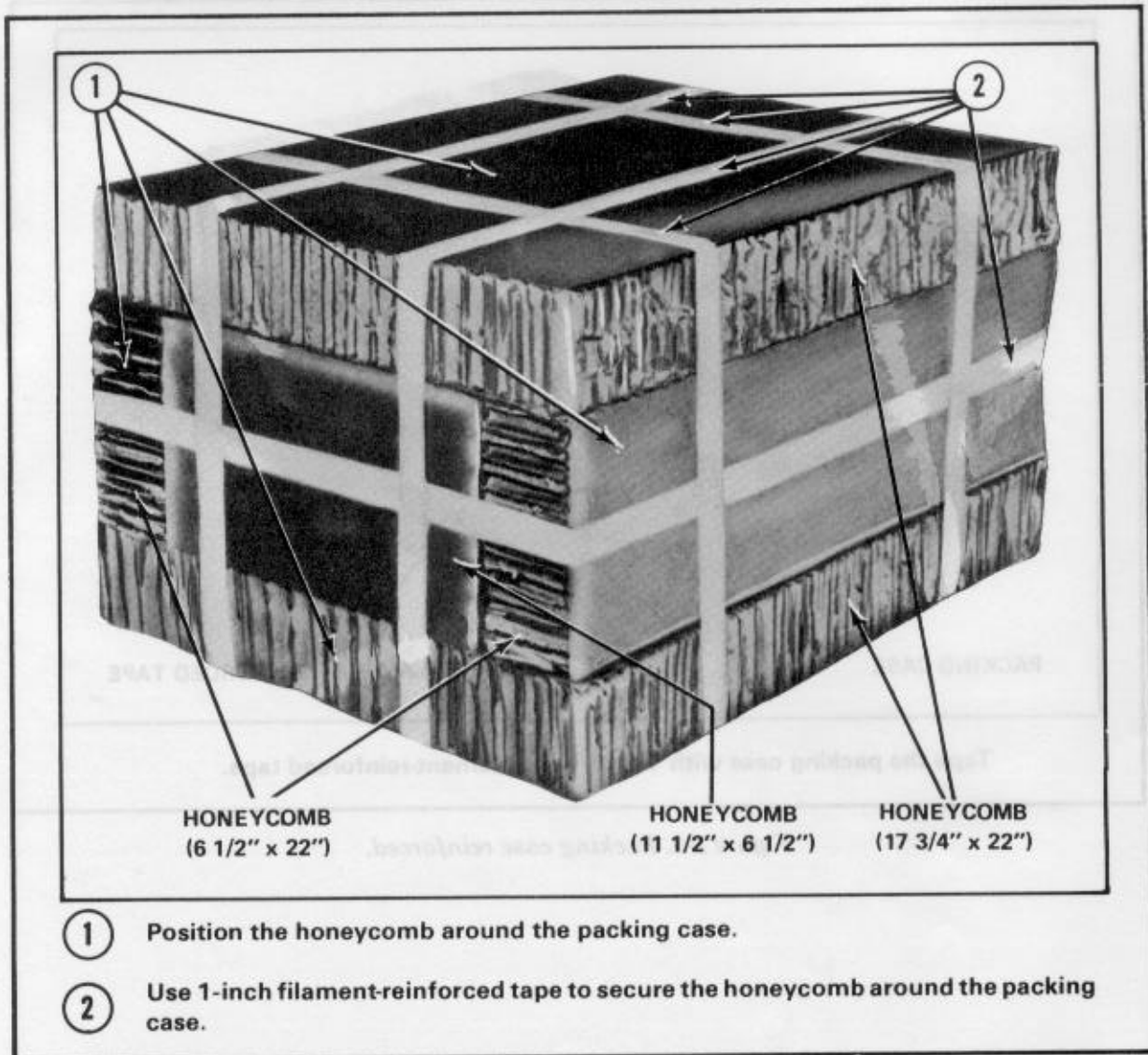


Figure 2-6. Honeycomb placed.

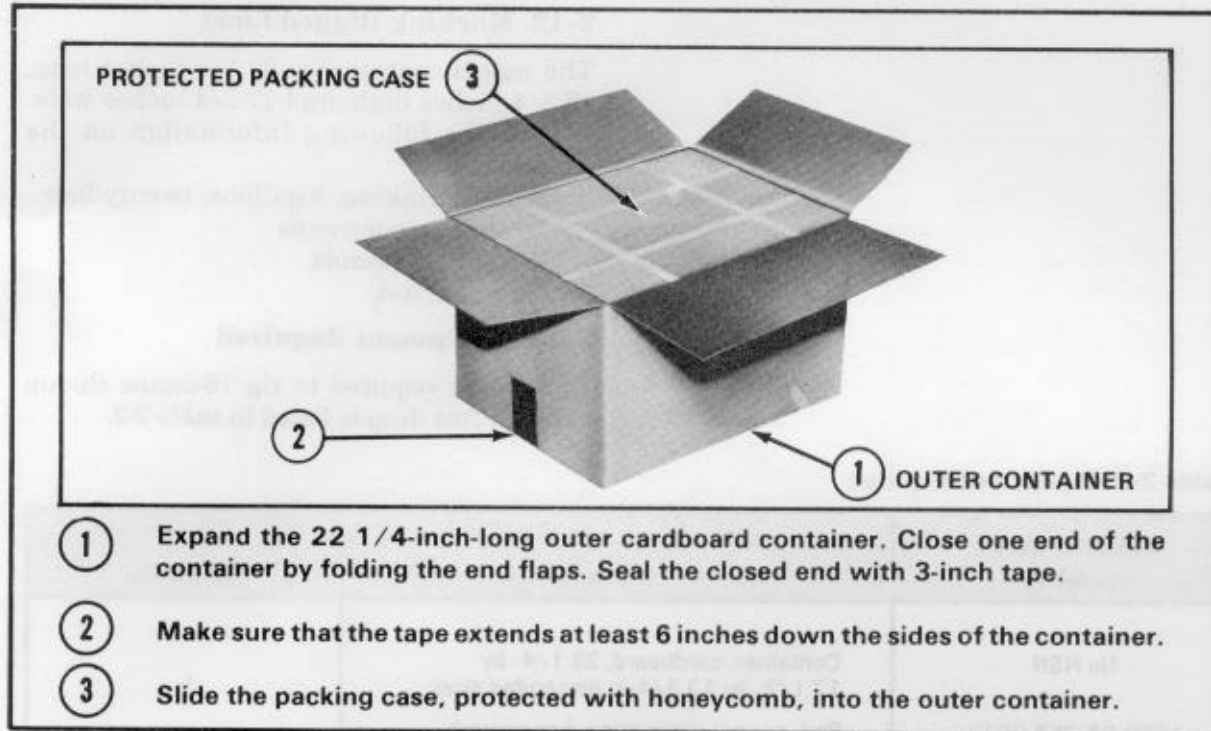


Figure 2-7. Preparing the outer container.

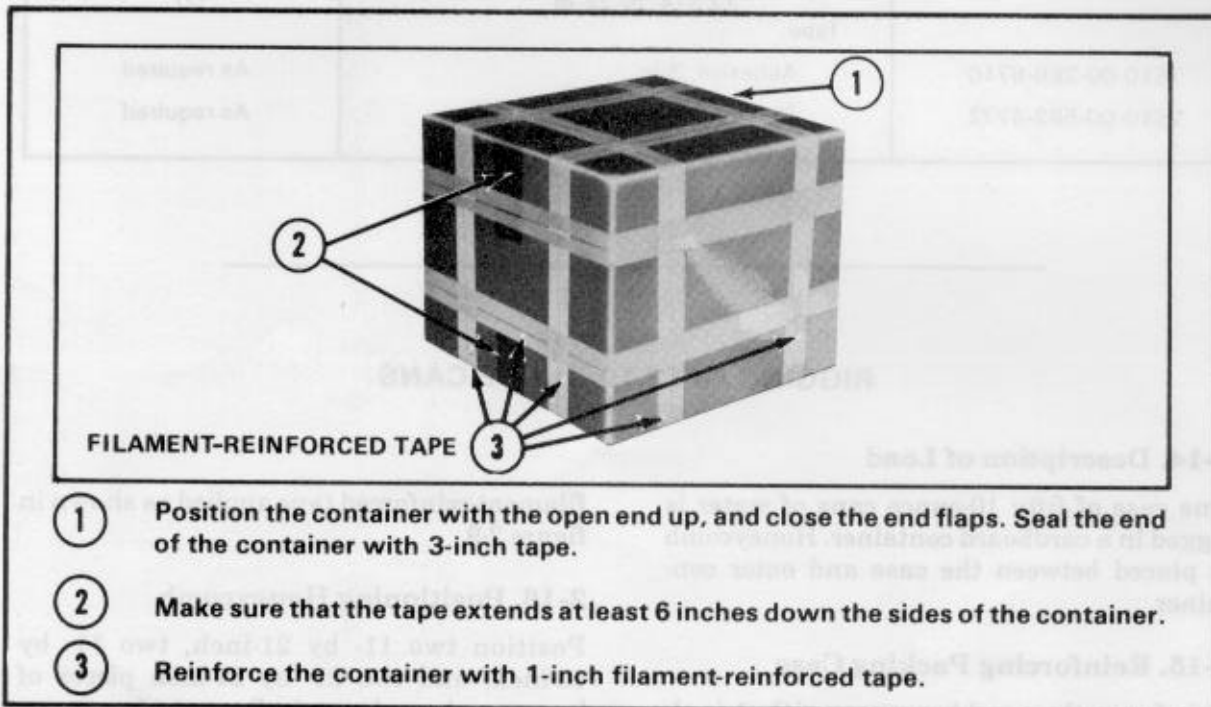


Figure 2-8. One case of zip-top cans of water prepared.

2-12. Marking Rigged Load

The rigged container is 22 1/4 inches long, 13 3/4 inches high, and 17 3/4 inches wide. Stencil the following information on the container:

Water, drinking, 3 gallons, twenty-four
16-ounce zip-top cans
Weight: 39 pounds
Cube: 3.2 feet

2-13. Equipment Required

Equipment required to rig 16-ounce zip-top cans for free drop is listed in table 2-2.

Table 2-2. Equipment required

National Stock Number	Item	Quantity
No NSN	Container, cardboard, 22 1/4- by 17 1/2- by 13 3/4-in (expanded size)	1
1670-00-753-3928	Pad, energy-dissipating, honeycomb, 3- by 36- by 96-in: 6 1/2- by 22-in 11 1/2- by 6 1/2-in 17 3/4- by 22-in	1 sheet (2) (2) (2)
7510-00-266-6710	Tape: Adhesive, 3-in	As required
7510-00-582-4772	Filament, reinforced, 1-in	As required

Section III**RIGGING FIFTY 10-OUNCE CANS****2-14. Description of Load**

One case of fifty 10-ounce cans of water is rigged in a cardboard container. Honeycomb is placed between the case and outer container.

filament-reinforced tape applied as shown in figure 2-9.

2-15. Reinforcing Packing Case

Reinforce the packing case with 1-inch

2-16. Positioning Honeycomb

Position two 11- by 21-inch, two 11- by 15-inch, and two 21- by 21-inch pieces of honeycomb as shown in figure 2-10.

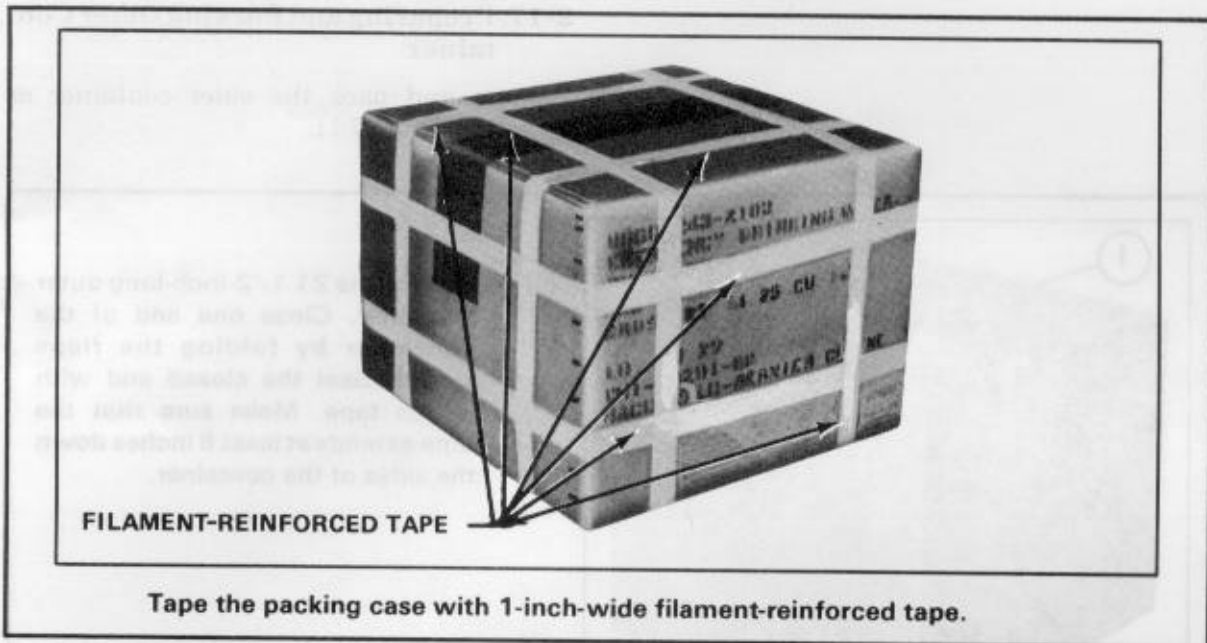


Figure 2-9. Packing case reinforced.

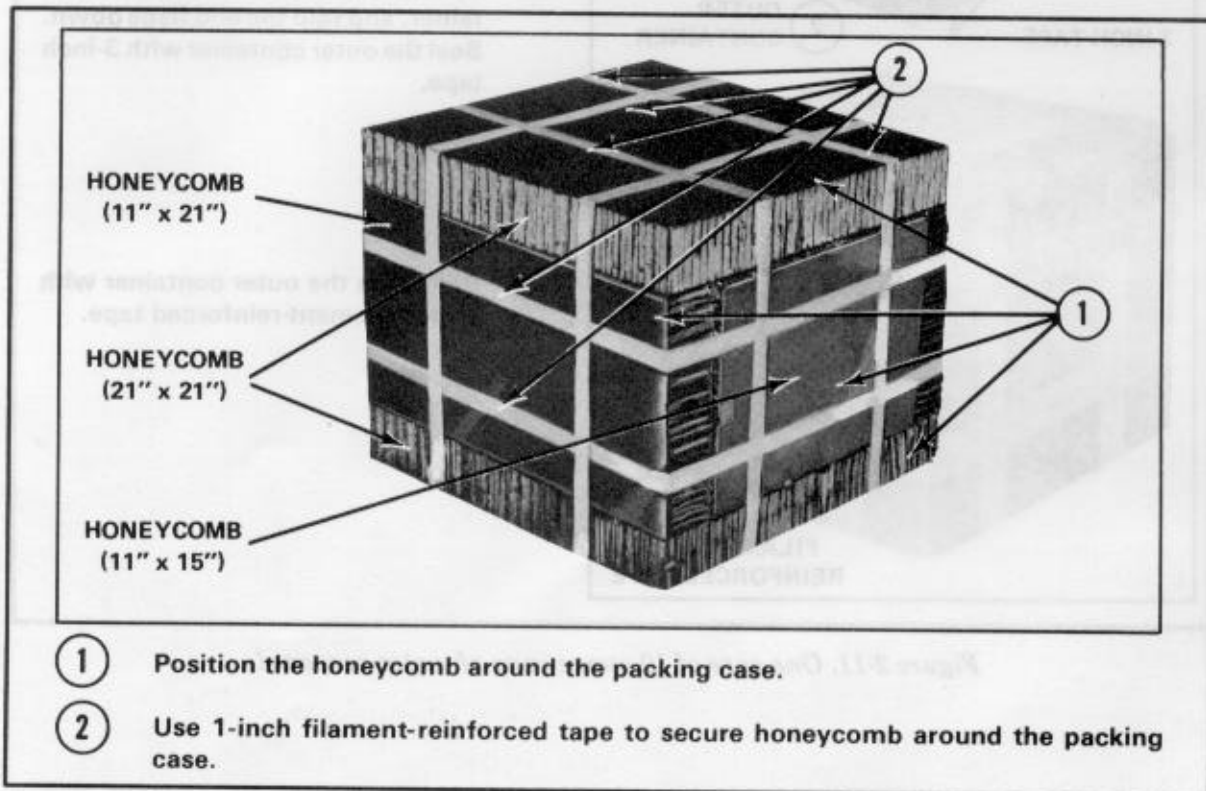


Figure 2-10. Honeycomb positioned.

2-17. Preparing and Packing Outer Container

Prepare and pack the outer container as shown in figure 2-11.

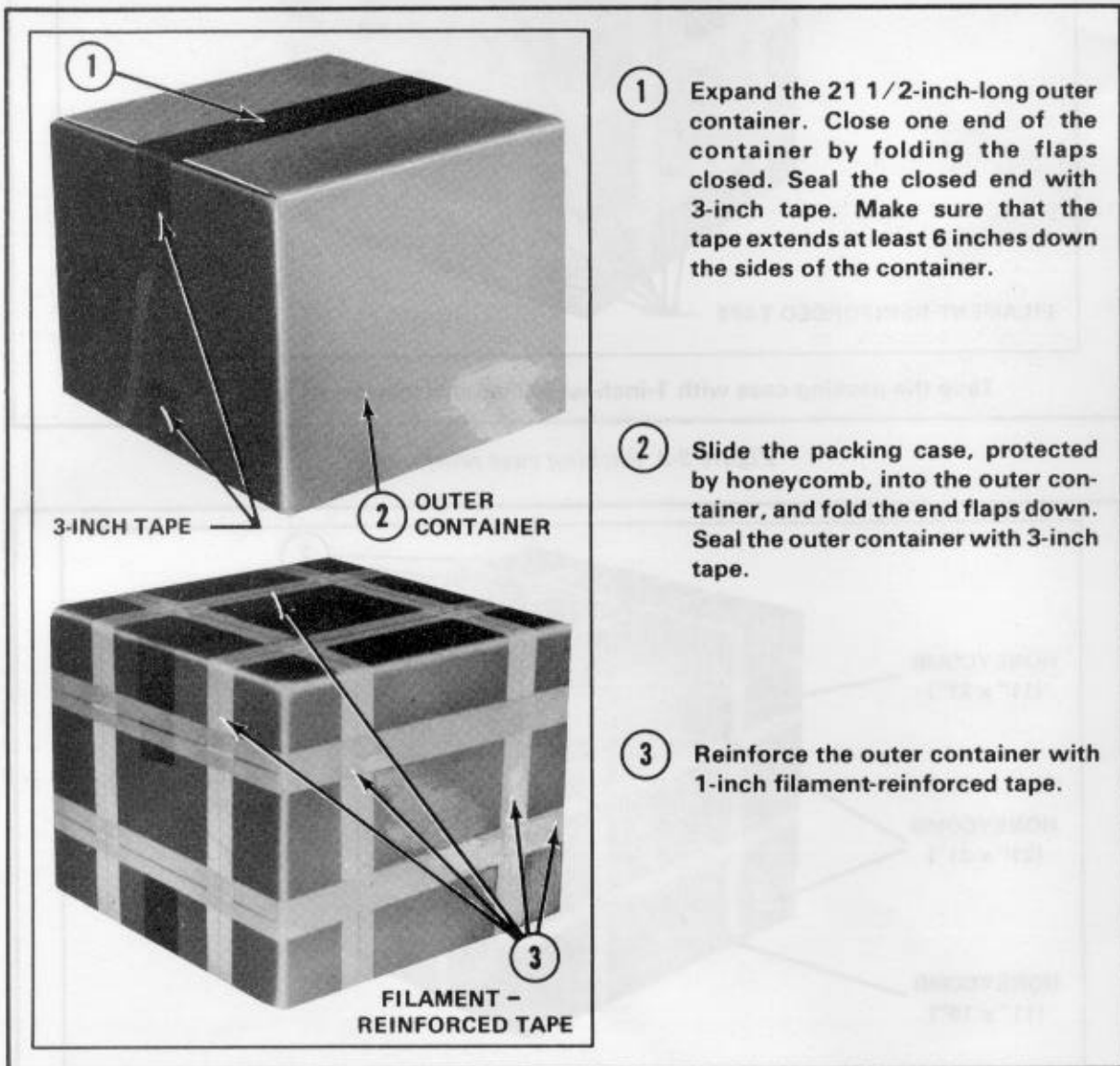


Figure 2-11. One case of 10-ounce cans of water prepared.

2-18. Marking Rigged Load

The rigged load is 21 1/2 inches long, 17 1/2 inches high, and 21 1/2 inches wide. Stencil the following information on the outer container:

Emergency drinking water, fifty
10-ounce cans
Weight: 59 pounds
Cube: 4.3 feet

2-19. Equipment Required

Equipment required to rig fifty 10-ounce cans for free drop is listed in table 2-3.

Table 2-3. Equipment required

National Stock Number	Item	Quantity
No NSN	Container, cardboard, 21 1/4- by 21 1/4- by 17-in (expanded size)	1
1670-00-753-3928	Pad, energy-dissipating, honeycomb, 3- by 36- by 96-in: 11- by 15-in 21- by 11-in 21- by 21-in	1 sheet (2) (2) (2)
7510-00-266-6710	Tape: Adhesive, 3-in	As required
7510-00-582-4772	Filament, reinforced, 1-in	As required

CHAPTER 3

Rigging Milk-Dispensing Containers

Section I

RIGGING EIGHT MILK-DISPENSING CONTAINERS IN AN A-21 CARGO BAG**3-1. Description of Load**

The 6-gallon milk-dispensing container is used as an expandable container for potable water. It is made up of a fiberboard box and a plastic bag insert. Eight containers are rigged in an A-21 cargo bag. Each cargo bag can be rigged for drop from a door, ramp, or wedge. The A-21 cargo bag uses either one

G-13 or one G-14 cargo parachute and a skid and honeycomb kit.

3-2. Preparing Containers

Prepare eight milk-dispensing containers as shown in figure 3-1.

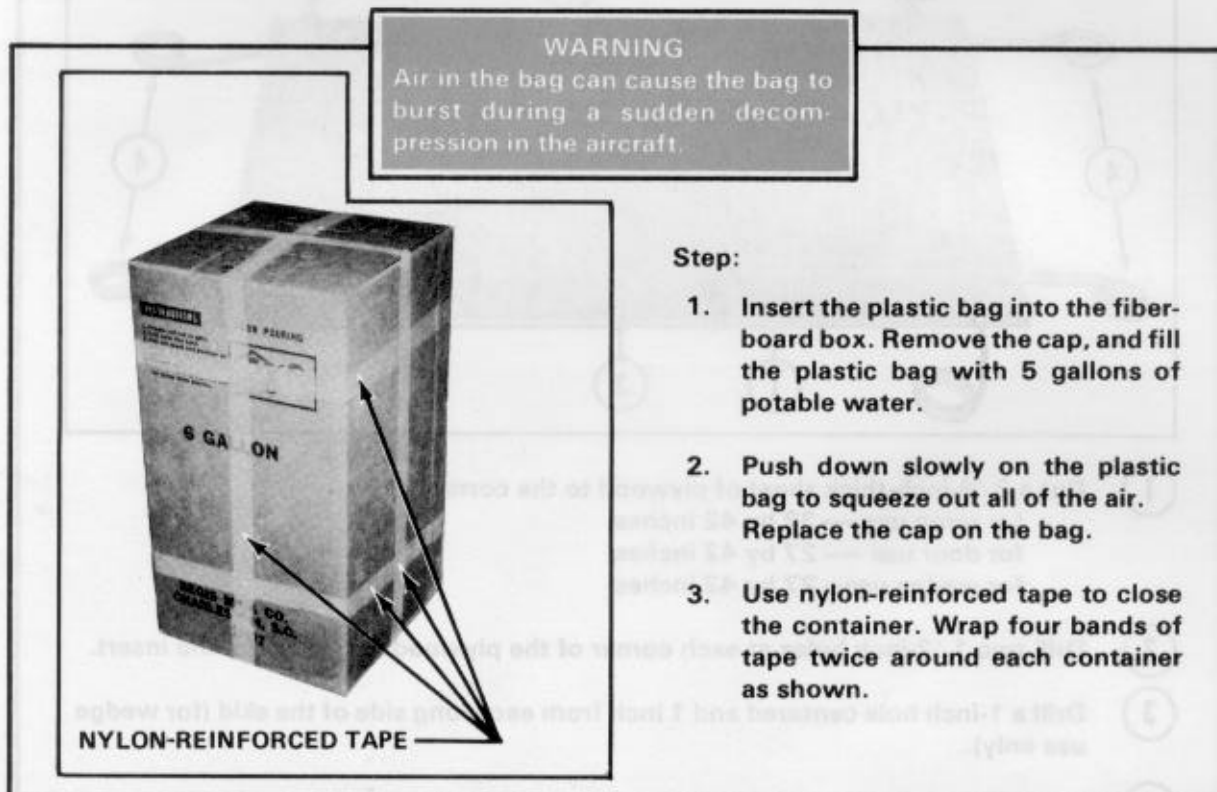


Figure 3-1. Milk-dispensing container prepared.

3-3. Rigging Load

Rig eight water containers in an A-21 cargo bag as shown in figures 3-2, 3-3, and 3-4.

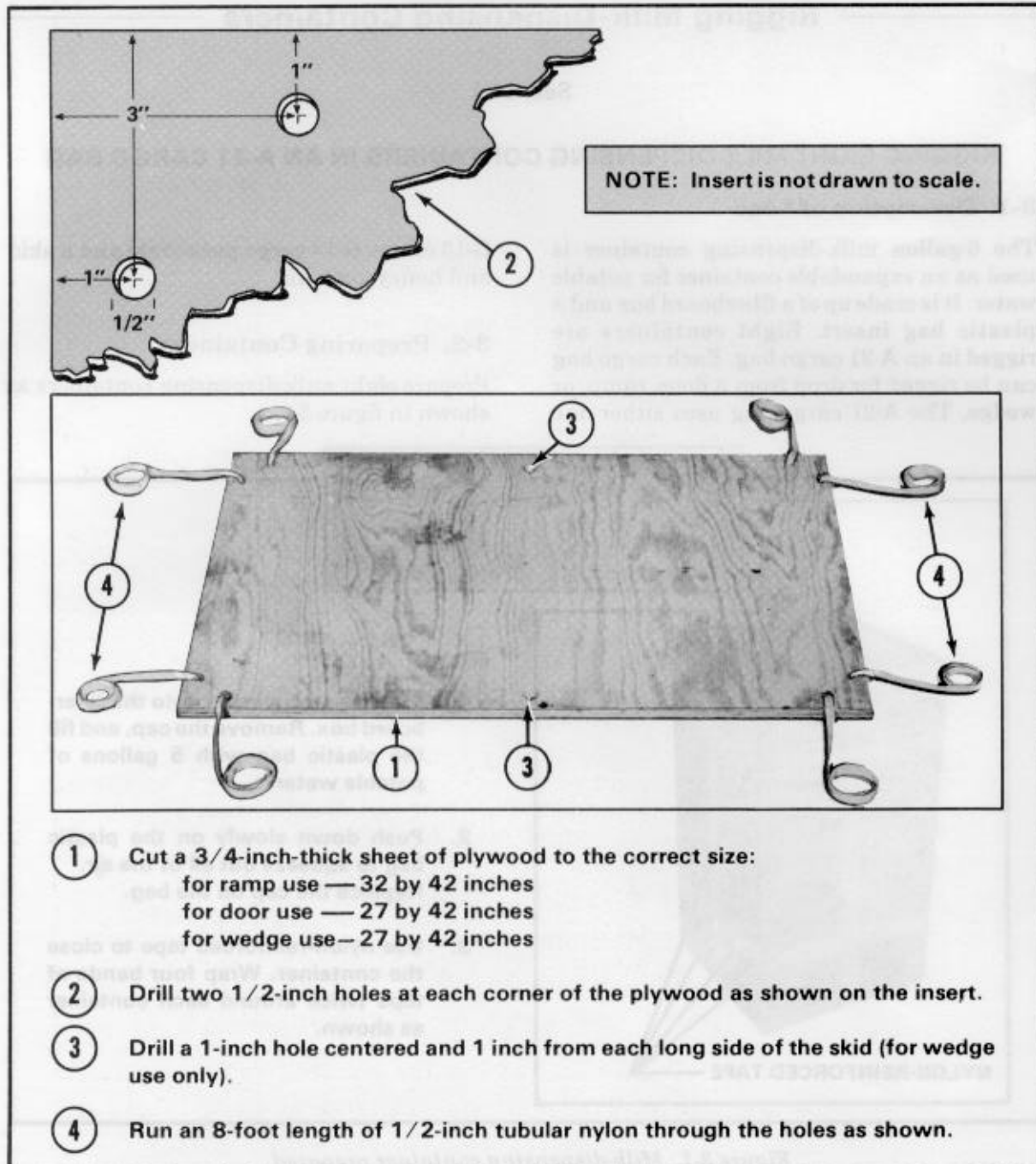
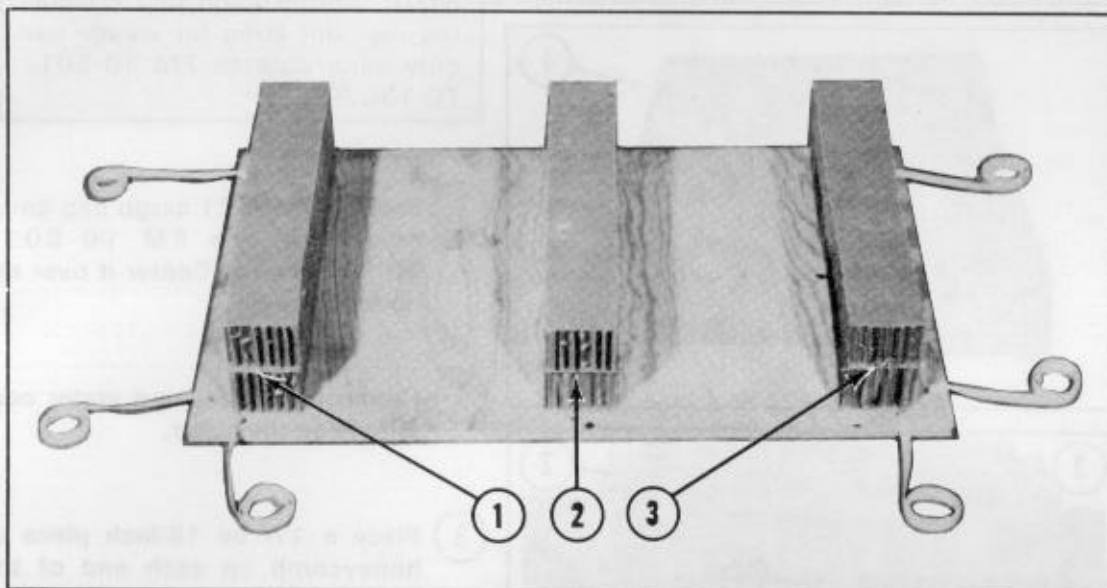
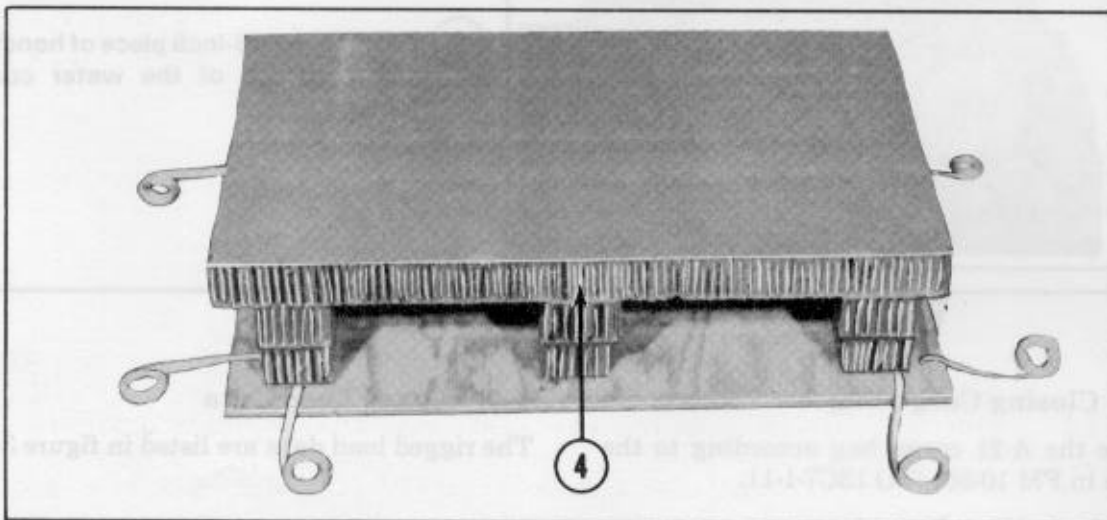


Figure 3-2. Skid prepared.



- ① Glue two 4- by 24-inch pieces of honeycomb together. Glue the honeycomb stack to the skid, 2 inches in from the side and centered between the front and rear edges.
- ② Follow step 1, but center the honeycomb stack on the skid.
- ③ Follow step 1.



- ④ Center a 24- by 42-inch piece of honeycomb on the three honeycomb stacks, and glue it.

Figure 3-3. Honeycomb stacks built and placed.

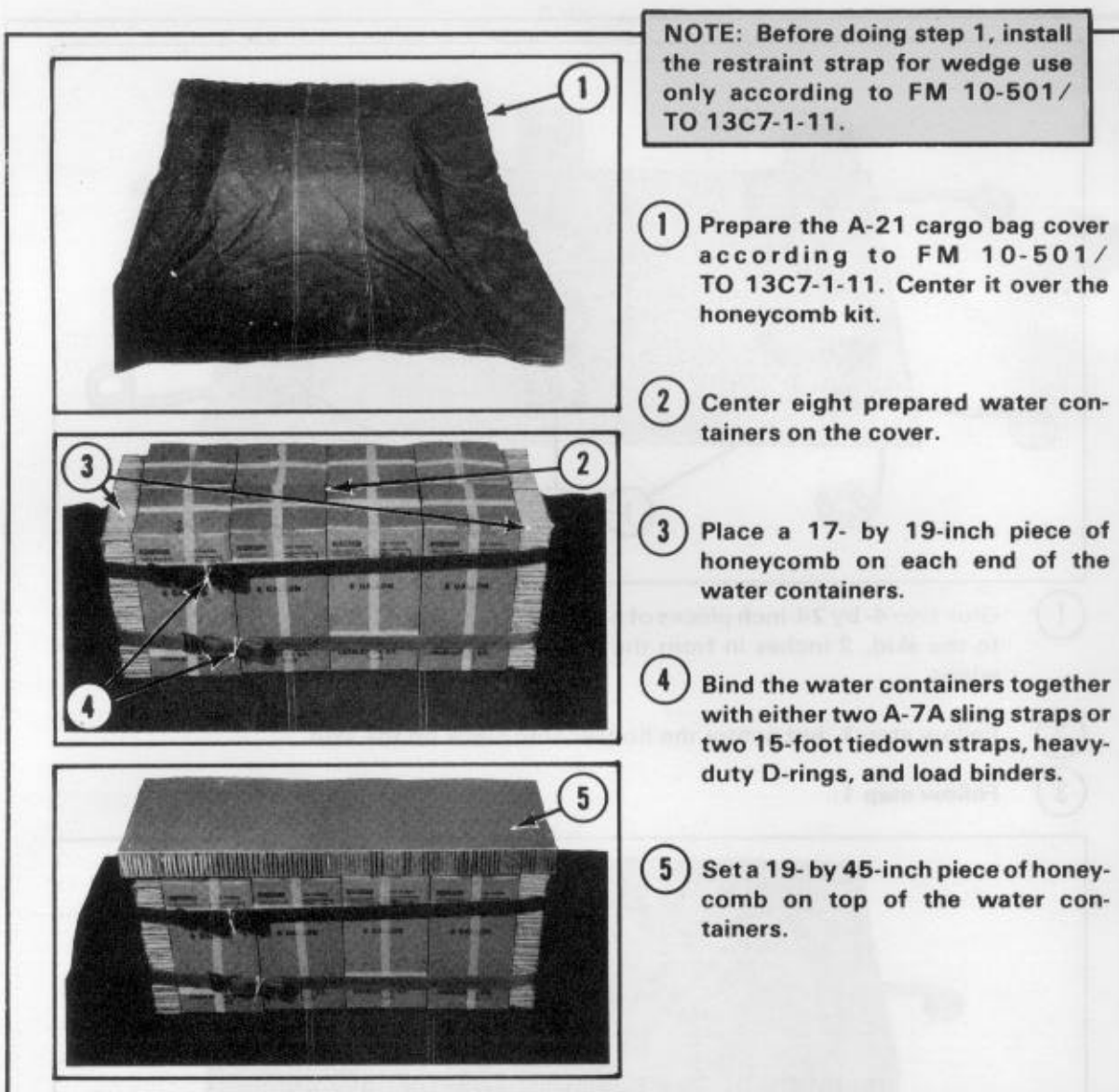


Figure 3-4. Water containers placed and bound.

3-4. Closing Cargo Bag

Close the A-21 cargo bag according to the steps in FM 10-501/TO 13C7-1-11.

3-5. Installing Parachute

Prepare and stow either one G-13 or G-14 cargo parachute according to FM 10-501/TO 13C7-1-11.

3-6. Rigged Load Data

The rigged load data are listed in figure 3-5.

3-7. Equipment Required

The equipment needed to prepare and rig the water containers is listed in table 3-1.

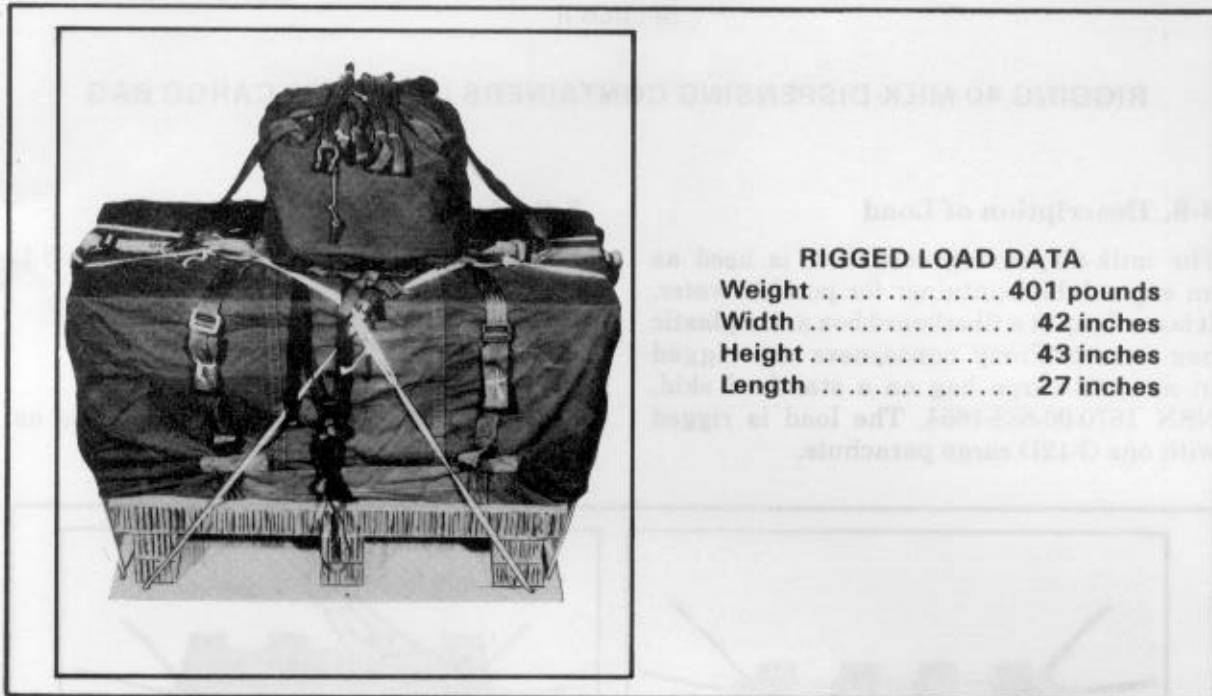


Figure 3-5. Milk-dispensing containers rigged in A-21 cargo bag for low-velocity airdrop.

Table 3-1. Equipment required

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal	As required
1670-00-242-9173	Bag, cargo, type A-21	1
1670-00-753-3928	Pad, energy-dissipating, honeycomb, 3- by 36- by 96-in:	2 sheets
	4- by 24-in	(6)
	17- by 19-in	(2)
	19- by 45-in	(1)
	24- by 42-in	(1)
1670-00-984-3535	Parachute, cargo, G-13 or	1
1670-00-999-2658	Parachute, cargo, G-14	1
5530-00-128-4981	Plywood, 3/4- by:	
	27- by 42-in or	1
	32- by 42-in	1
1670-00-251-1153	Sling, cargo, airdrop, type A-7A	1
	Tape:	
7510-00-266-5016	Adhesive, 2-in	As required
7510-00-582-4772	Filament, reinforced, 1-in	As required
1670-00-937-0271	Tiedown assembly	2
8305-00-268-2411	Webbing, cotton, 80-lb	As required
8305-00-082-5752	Webbing, nylon, tubular, 1/2-in	As required

Section II

RIGGING 40 MILK-DISPENSING CONTAINERS IN AN A-22 CARGO BAG**3-8. Description of Load**

The milk-dispensing container is used as an expendable container for potable water. It is made up of a fiberboard box and a plastic bag insert. Forty containers are rigged in an A-22 cargo bag on a standard skid, NSN 1670-00-883-1654. The load is rigged with one G-12D cargo parachute.

3-9. Preparing Containers

Prepare 40 containers as shown in figure 3-1.

3-10. Rigging Load

Rig 40 containers in an A-22 cargo bag as shown in figures 3-6 through 3-8.

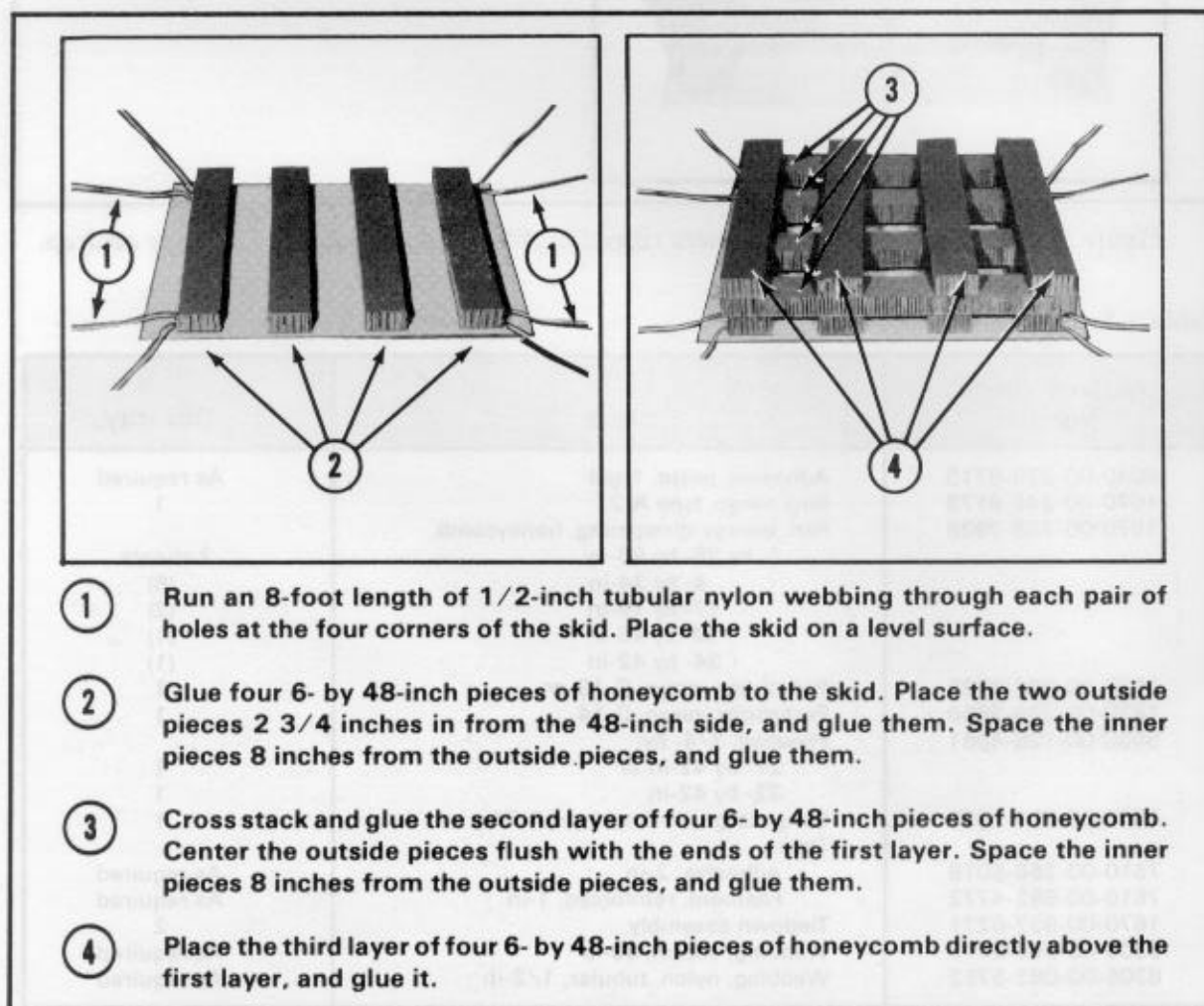


Figure 3-6. Skid prepared and honeycomb stacks placed.

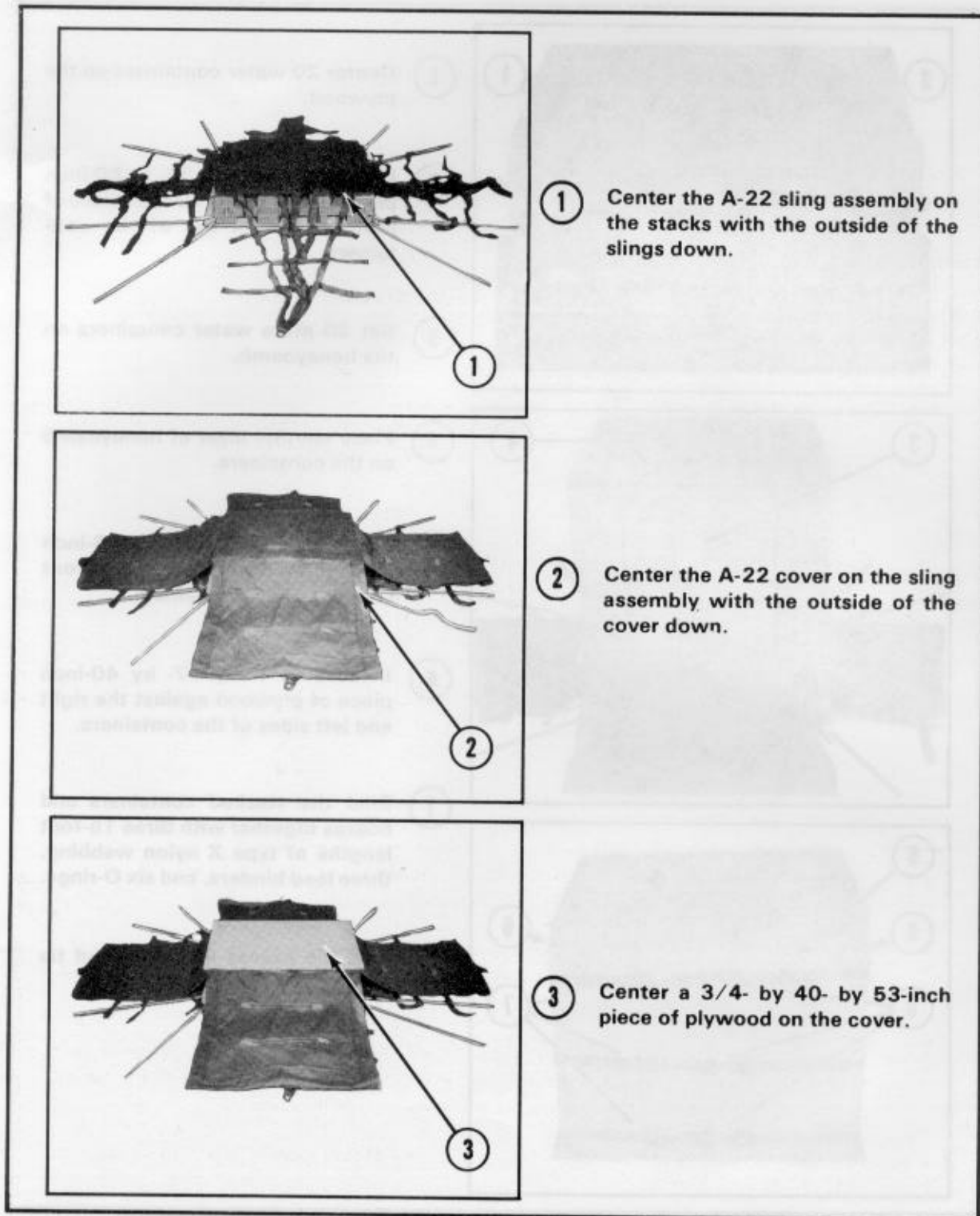


Figure 3-7. Cargo bag and plywood placed.

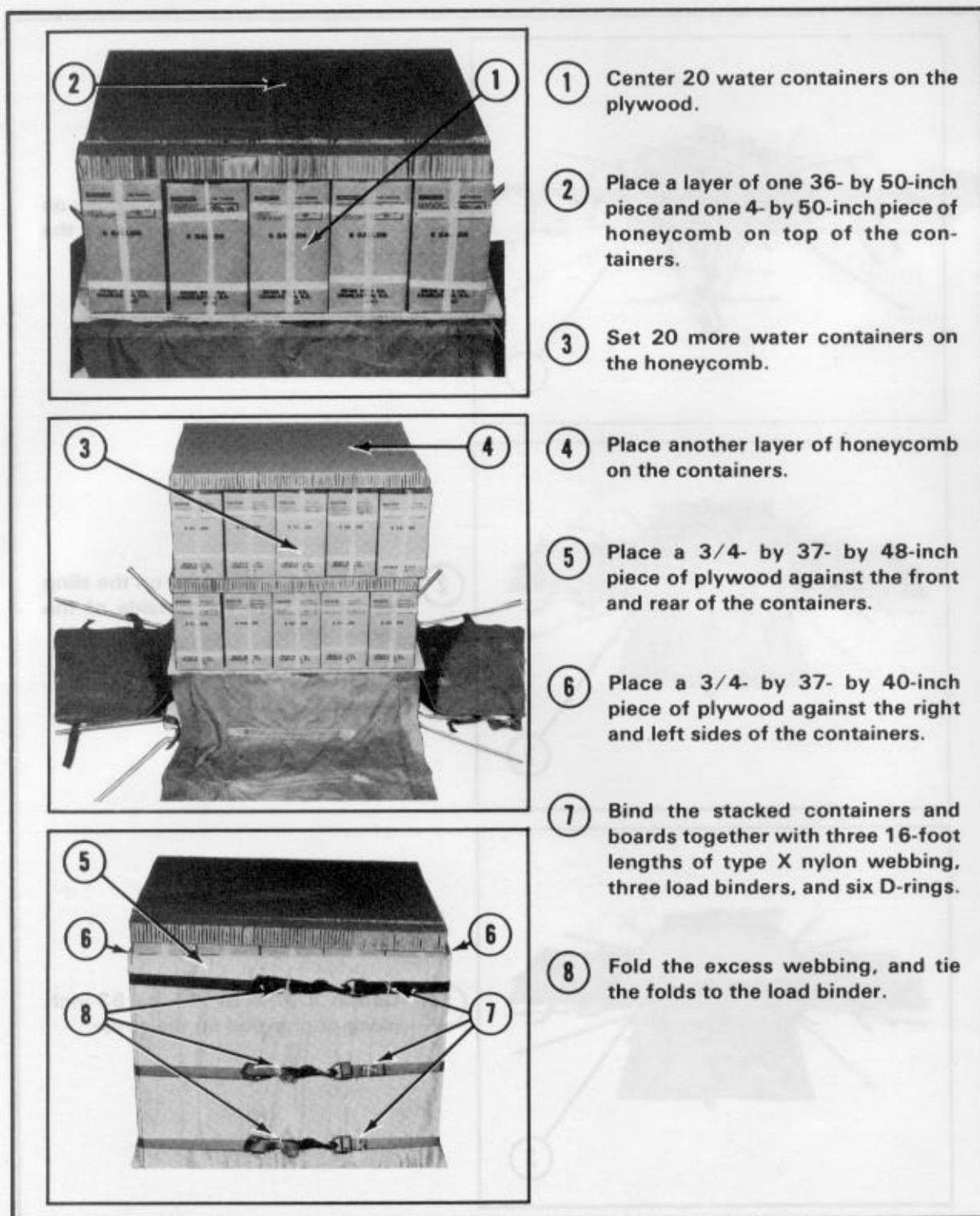


Figure 3-8. Water containers placed and bound.

3-11. Closing Cargo Bag

Close the A-22 cargo bag according to the steps in FM 10-501/TO 13C7-1-11.

3-12. Installing Parachute

Prepare and stow one G-12D cargo parachute with a 68-inch pilot parachute according to FM 10-501/TO 13C7-1-11.

3-13. Rigged Load Data

The rigged load data are listed in figure 3-9.

**RIGGED LOAD DATA**

Weight.....	2,030 pounds
Width.....	53 1/2 inches
Height.....	65 inches
Length.....	48 inches

Figure 3-9. Milk-dispensing containers rigged in A-22 cargo bag for low-velocity airdrop.

3-14. Equipment Required

The equipment needed to prepare and rig the water containers is listed in table 3-2.

Table 3-2. Equipment required

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal	As required
1670-00-587-3421	Bag, cargo, airdrop, type A-22	1
1670-00-937-0272	Binder, load, 10,000-lb-cap	3
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
5365-00-937-0147	D-ring, heavy-duty	6
1670-00-753-3928	Pad, energy-dissipating, honeycomb, 3- by 36- by 96-in:	5 sheets
	4- by 40-in	(2)
	6- by 48-in	(12)
	36- by 50-in	(2)
1670-00-216-7297	Parachute, pilot, 68-in diam	1
1670-00-893-2371	Parachute, cargo, 64-ft, G-12D	1
5530-00-128-4981	Plywood, 3/4- by:	
	37- by 40-in	2
	37- by 48-in	2
	40- by 53-in	1
1670-00-883-1654	Skid, cargo bag, platform	1
	Tape:	
7510-00-266-5016	Adhesive, 2-in	As required
7510-00-582-4772	Filament, reinforced, 1-in	As required
	Webbing:	
8305-00-268-2411	Cotton, 80-lb	As required
8305-00-082-5752	Nylon, tubular, 1/2-in	As required
8305-00-260-6890	Nylon, type X, 16-ft	3

CHAPTER 6

Rigging 55-Gallon Collapsible Water Drums

Section I

**RIGGING DRUMS IN AN A-22 CARGO BAG FOR
LOW-VELOCITY AIRDROP**

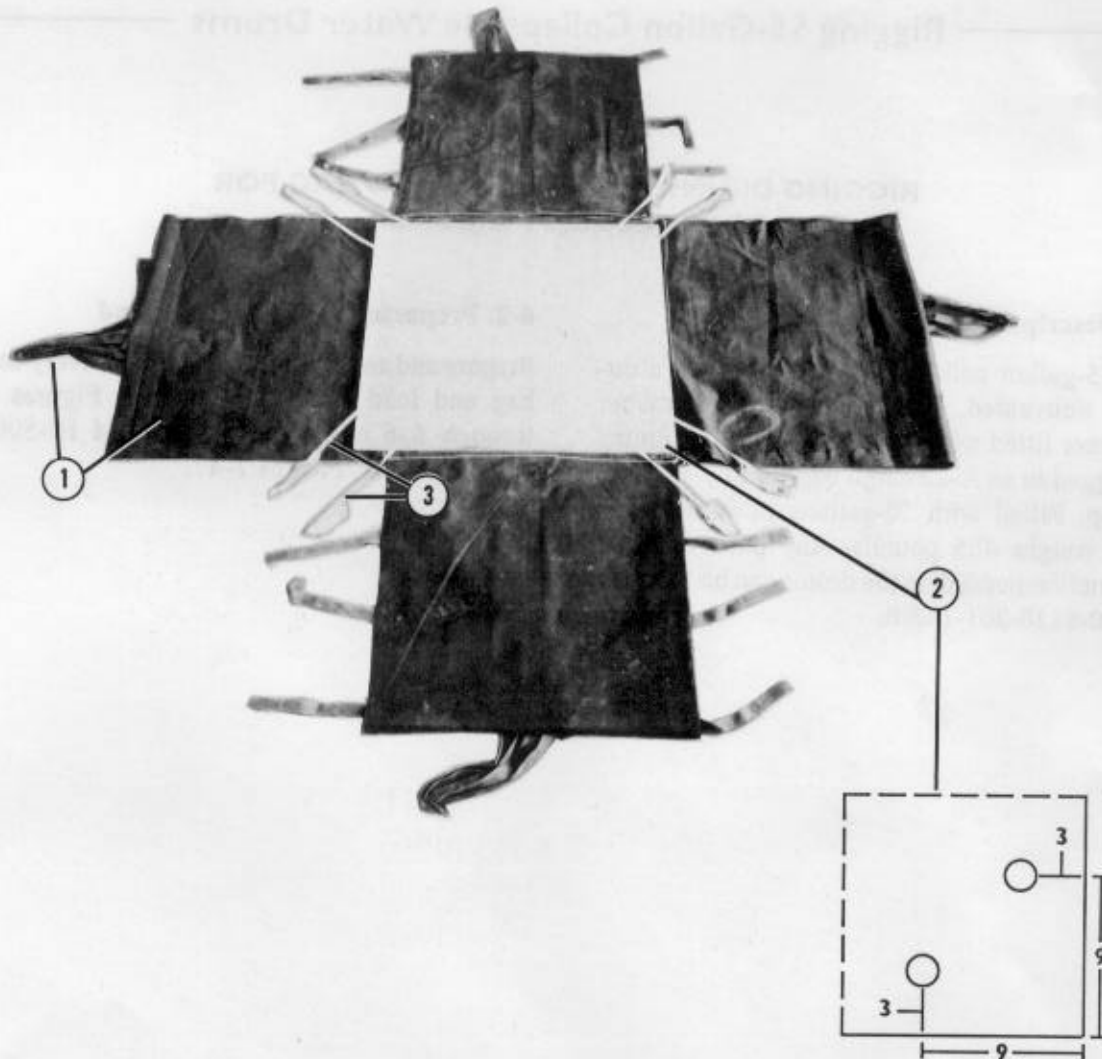
6-1. Description of Load

The 55-gallon collapsible water drum is a durable, nonvented, cylindrically shaped, rubber container fitted with a faucet valve. Four drums are rigged in an A-22 cargo bag for low-velocity airdrop. Filled with 50-gallons of water, each drum weighs 465 pounds. Any parts or other information needed on the drums can be found in TM 10-8110-201-14&P.

6-2. Preparing and Securing Load

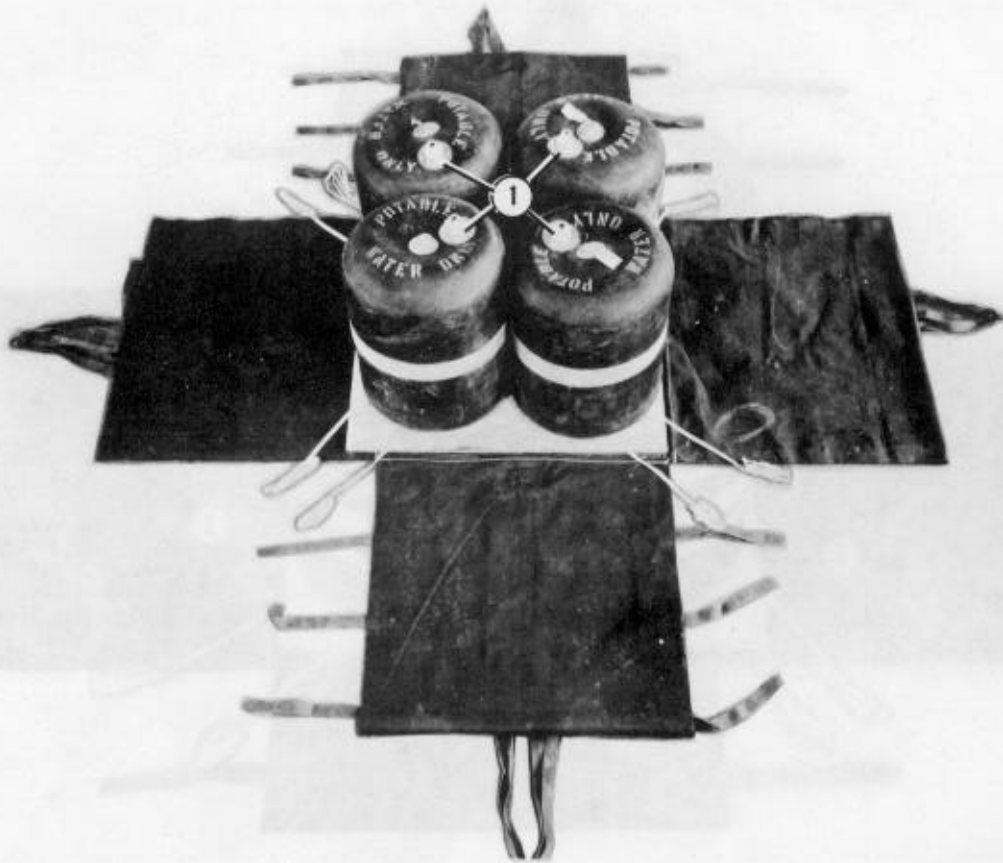
Prepare and secure the A-22 aerial delivery cargo bag and load items as shown in Figures 6-1 through 6-6 and according to FM 10-500-3/TO 13C7-1-11/FMFM 7-47.

NOTES: 1. All measurements are given in inches.
2. This drawing is not drawn to scale.



- ① Lay out a sling assembly with cover according to FM 10-500-3/TO 13C7-1-11/ FMFM 7-47.
- ② Drill two 1/2-inch holes in each corner of a 3/4- by 48- by 48-inch piece of plywood or skidboard. Place the holes 9 inches from each corner and 3 inches from the edge.
- ③ Position the plywood inside the cover. Pass a 15-foot length of 1/2-inch tubular nylon webbing through the holes in each corner of the plywood.

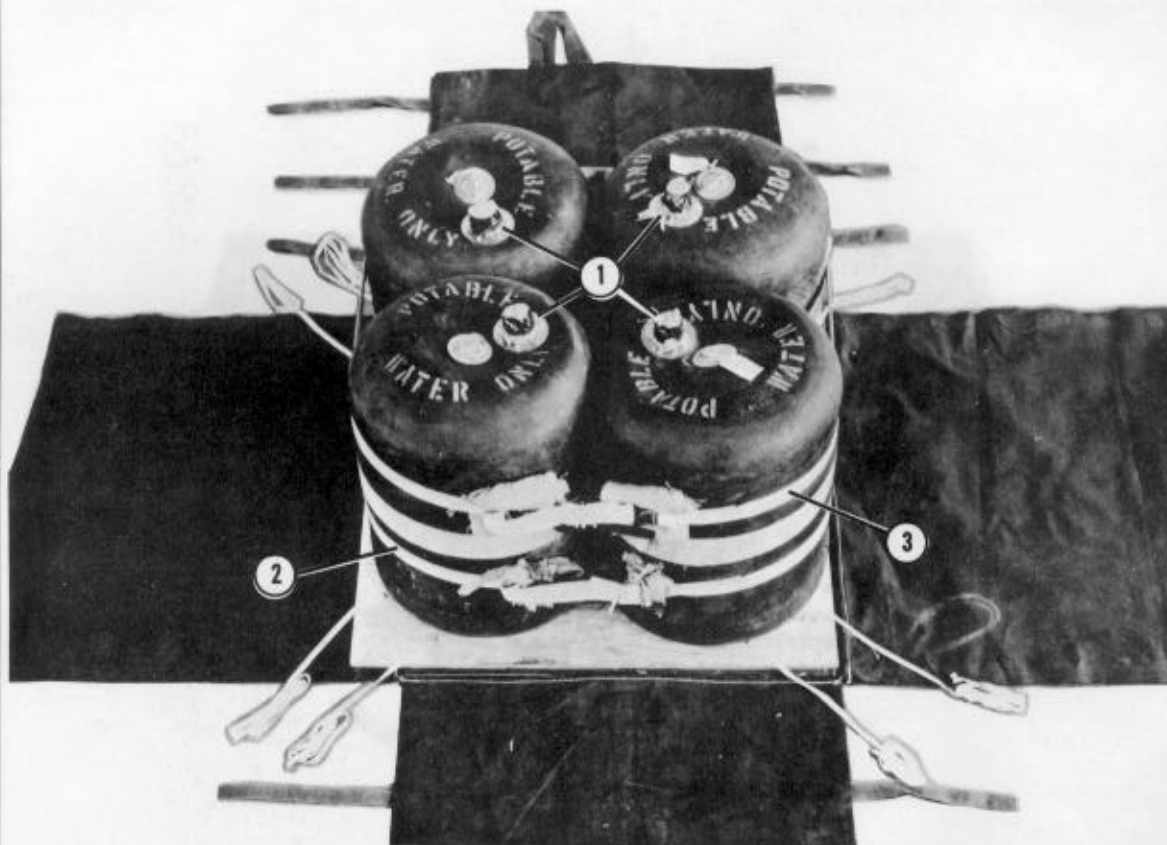
Figure 6-1. A-22 cargo bag prepared



- ① Center four 55-gallon collapsible water drums on the 48- by 48-inch plywood with the valves facing into the center.

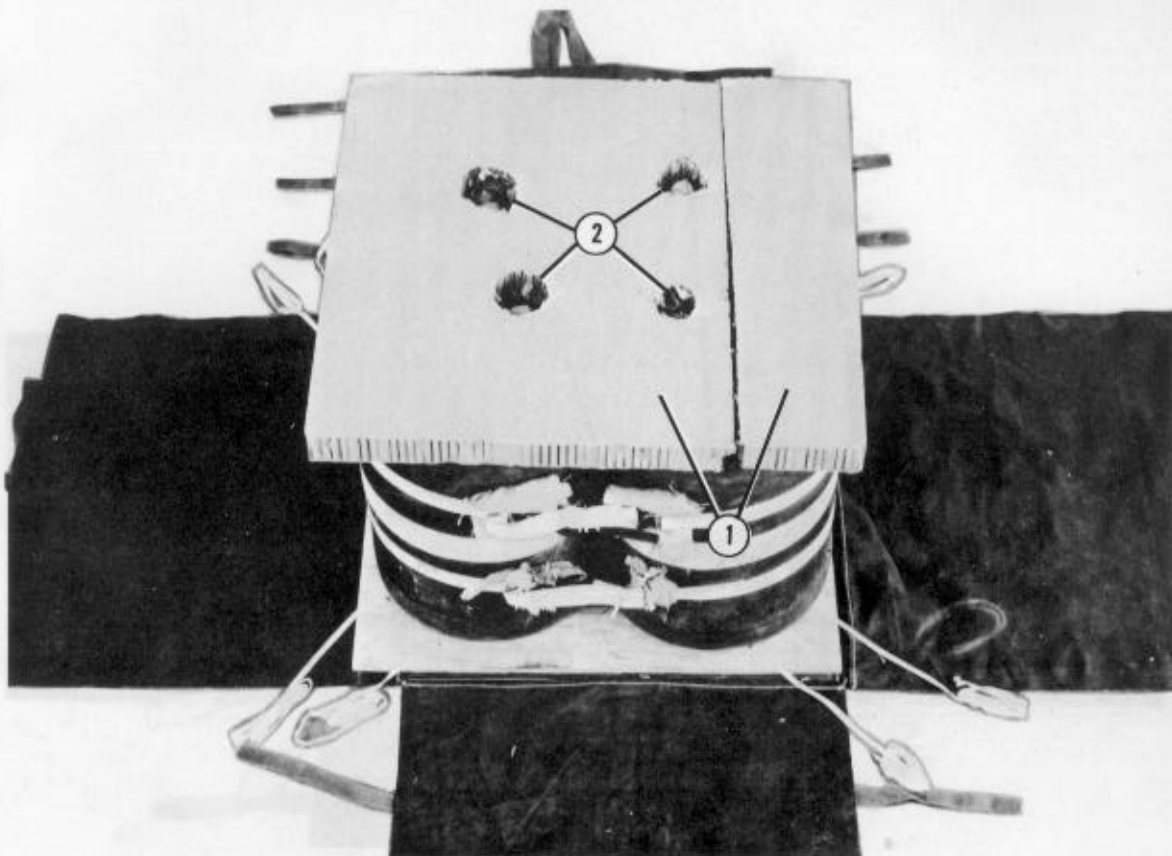
Figure 6-2. Drums positioned

NOTE: Pad the load binders and D-rings with cellulose wadding.



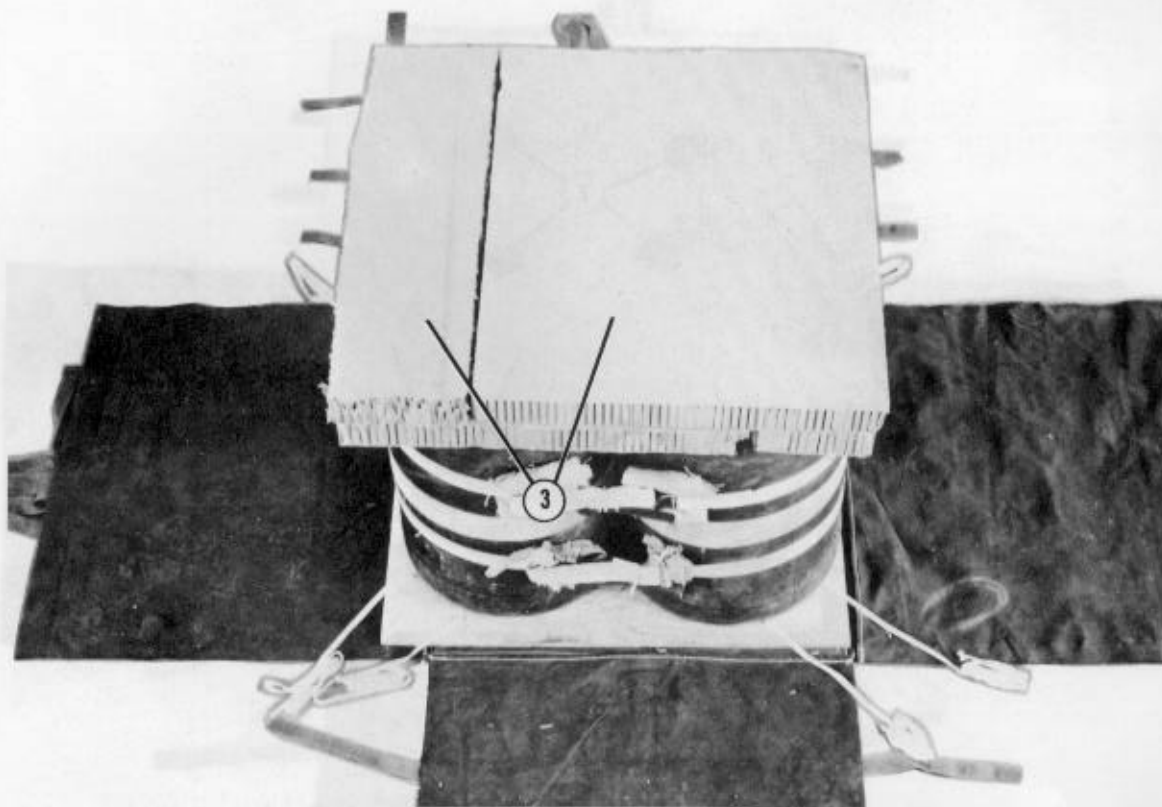
- ① Pad the faucet valves with cellulose wadding and tape.
- ② Pass one 15-foot tie-down lashing around the lower half of the drums, and secure with a load binder and D-ring.
- ③ Repeat step 2 for the upper half of the drums.

Figure 6-3. Drums secured together



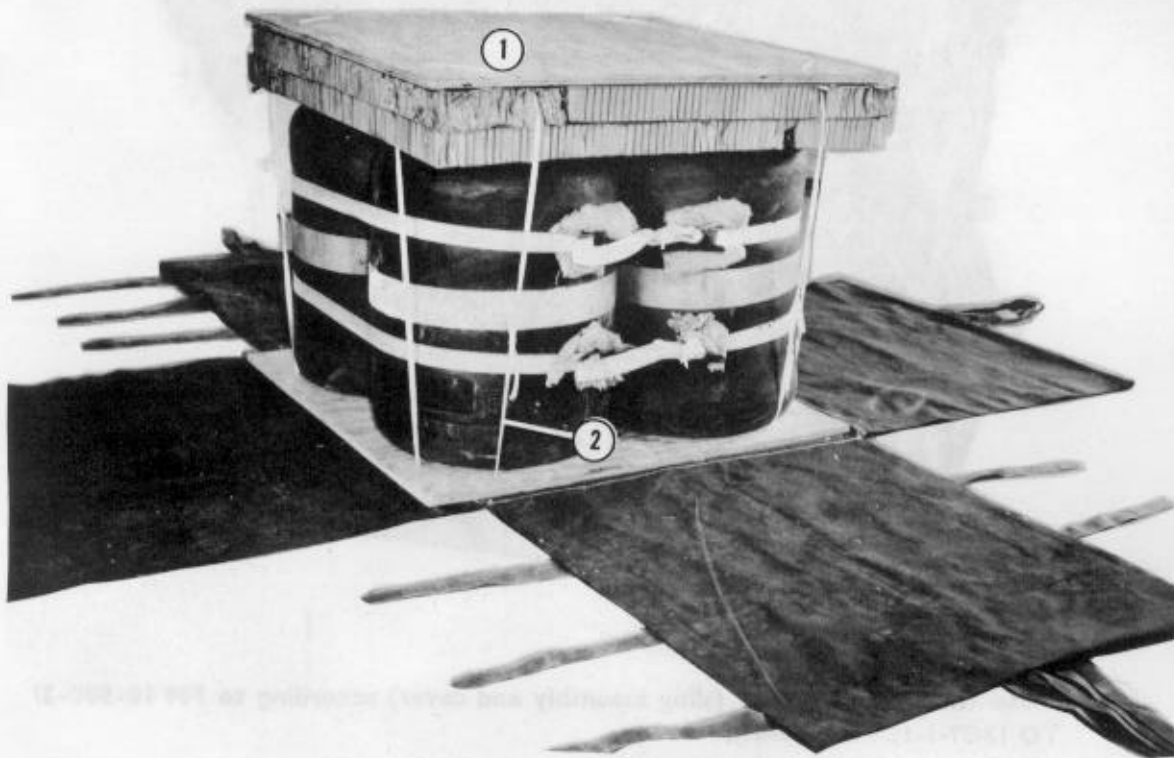
- ① Center a layer of 48- by 48-inch honeycomb on top of the drums (one piece is 48 by 36 inches and another is 48 by 12 inches).
- ② Mark where the valves contact the 48- by 48-inch layer of honeycomb. Cut holes 5 inches larger than the valves at each mark.

Figure 6-4. Honeycomb positioned



- ③ Make a second 48- by 48-inch layer of honeycomb on top of the first layer by positioning the 48- by 12-inch piece on the side opposite the same piece of the first layer. Complete the second layer by placing the 48- by 36-inch piece next to the 48- by 12-inch piece.

Figure 6-4. Honeycomb positioned (continued)



- ① Position a 3/4- by 48- by 48-inch piece of plywood or skidboard, with holes drilled as described in Figure 6-1 on top of the 48- by 48-inch layers of honeycomb.
- ② Secure the two pieces of plywood together by passing the 1/2-inch tubular nylon from each corner of the lower piece of plywood to the same corner of the upper piece of plywood. Tie the ends together with a surgeon's knot and a locking knot according to FM 10-500-2/TO 13C7-1-5.

Figure 6-5. Plywood and honeycomb secured



- ① Close the A-22 container (sling assembly and cover) according to FM 10-500-3/TO 13C7-1-11/FMFM 7-47.
- ② Attach the suspension webs to the A-22 container according to FM 10-500-3/TO 13C7-1-11/FMFM 7-47 (not shown).

Figure 6-6. A-22 container closed

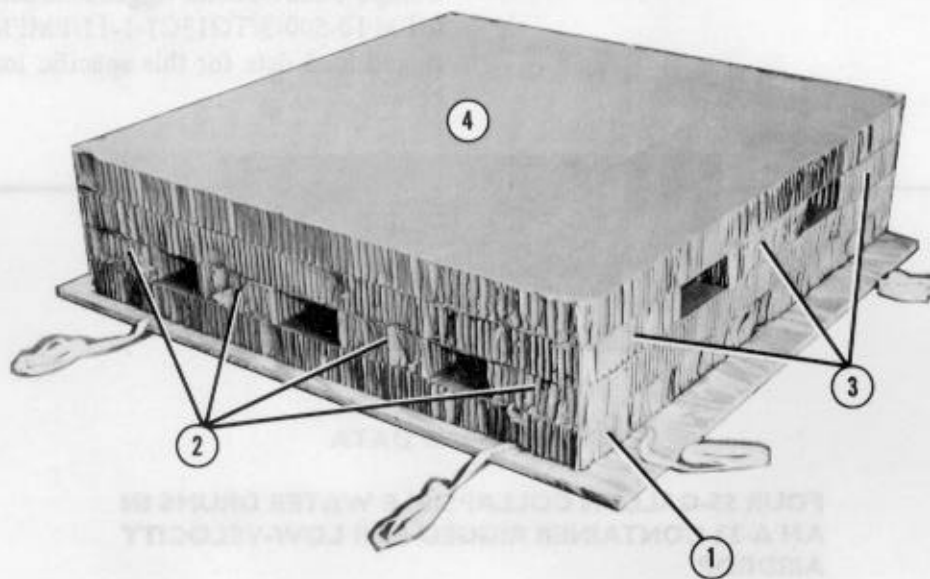
6-3. Preparing Skidboard

Prepare a skidboard according to FM 10-500-3/TO 13C7-1-11/FMFM 7-47.

6-4. Building and Positioning Honeycomb on Skidboard

Build the honeycomb as shown in Figure 6-7. Position the honeycomb on the skidboard according to FM 10-500-3/TO 13C7-1-11/FMFM 7-47.

NOTE: The honeycomb stack should be glued together. It is not required to glue the stack to the skidboard.



- ① Cut a 44- by 36-inch and a 44- by 8-inch piece of honeycomb to form the 48- by 48-inch bottom layer.
- ② Cut four 44- by 8-inch pieces of honeycomb. Place one piece on each end, flush with the edges of the bottom (first) layer. Evenly space the other two pieces between the end pieces to form the second layer.
- ③ Cut three 44- by 11-inch pieces of honeycomb. Place one piece on each end, flush with the edges, but running in the opposite direction of the second layer. Center the third piece between the end pieces to form the third layer.
- ④ Cut a 44- by 36-inch and a 44- by 8-inch piece of honeycomb to form the 48- by 48-inch top (fourth) layer.

Figure 6-7. Building honeycomb layers

6-5. Securing Skidboard to A-22 Cargo Bag

Secure the skidboard to the container according to FM 10-500-3/TO 13C7-1-11/FMFM 7-47.

6-6. Installing Parachute

Attach and secure the parachute according to FM 10-500-3/TO 13C7-1-11/FMFM 7-47.

6-7. Equipment Required

Use the equipment listed in the table in FM 10-500-3/TO 13C7-1-11/FMFM 7-47 (rigging an A-22 container load for low-velocity airdrop) to rig four 55-gallon collapsible water drums in an A-22 cargo bag for low-velocity airdrop.

6-8. Marking Rigged Load

Compute and mark the rigged load data according to FM 10-500-3/TO 13C7-1-11/FMFM 7-47. The rigged load data for this specific load is listed below.

CAUTION
Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before the load leaves the rigging site. Rigged load data must be verified.

RIGGED LOAD DATA

FOUR 55-GALLON COLLAPSIBLE WATER DRUMS IN AN A-22 CONTAINER RIGGED FOR LOW-VELOCITY AIRDROP

Weight	1,980 pounds
Height	52 inches
Length	48 inches
Width	48 inches
CB	24 inches

Section II

**RIGGING DRUMS IN FOUR A-22 CARGO BAGS ON AN 8-FOOT
TYPE V PLATFORM FOR LOW-VELOCITY AIRDROP****6-9. Description of Load**

The 55-gallon collapsible water drum is a durable, nonvented, cylindrically shaped rubber container fitted with a faucet valve. Four drums are rigged in an A-22 cargo bag, and four A-22 containers are rigged on an 8-foot, type V platform for low-velocity airdrop. Filled with 50 gallons of water, each drum weighs 465 pounds. Any parts or other information needed on the drums can be found in TM 10-8110-201-14&P.

6-10. Rigging Procedures

If A-22 containers with 55-gallon collapsible water drums are to be rigged on an 8-foot, type V platform, rig four A-22 cargo bags according to paragraphs 6-2 and 6-7. Do NOT add the 48- by 48-inch skidboards, the four layers of honeycomb, and the G-12 parachutes. Rig the platform load according to FM 10-512/TO 13C7-1-8 using the procedures for rigging bulk supplies in A-22 cargo bags on an 8-foot type V platform.

CHAPTER 7

**Rigging 250-Gallon Water Drums for Low-Velocity
Airdrop on a Type V Platform**

Section I

RIGGING THREE DRUMS ON AN 8-FOOT PLATFORM**7-1. Description of Load**

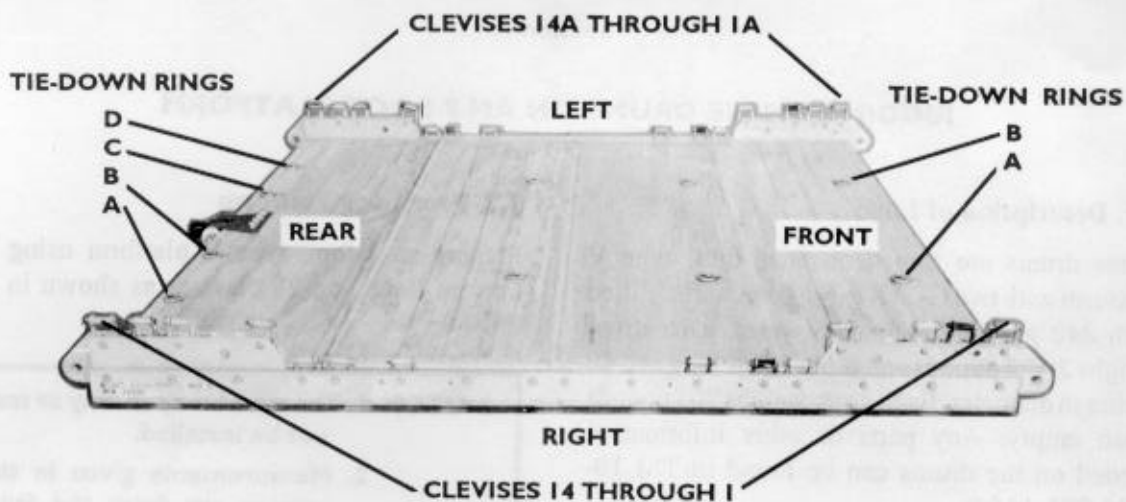
Three drums are rigged on an 8-foot, type V platform with two G-11B cargo parachutes. Filled with 240 gallons of potable water, each drum weighs 2,197 pounds and is 60 inches long and 40 inches in diameter. Each drum weighs 205 pounds when empty. Any parts or other information needed on the drums can be found in TM 10-8110-201-14&P.

7-2. Preparing Platform

Prepare an 8-foot, type V platform using four tandem links and 28 clevises as shown in Figure 7-1.

NOTES: 1. The nose bumper may or may not be installed.

2. Measurements given in this section are from the front edge of the platform, **NOT** from the front edge of the nose bumper.



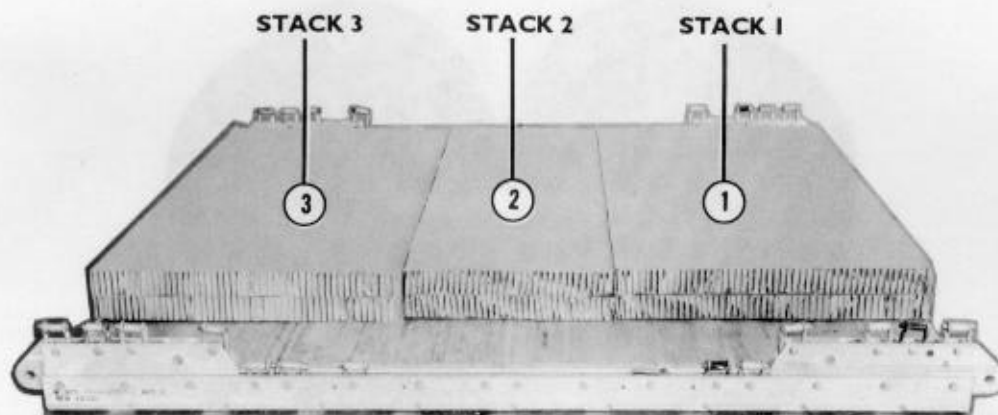
Step:

1. Inspect, or assemble and inspect, the platform according to TM 10-1670-268-20&P/ TO 13C7-52-22.
2. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3.
3. Install a tandem link on the rear of each platform side rail using holes 14, 15, and 16.
4. Install a tie-down clevis on bushings 1, 2, 3, and 4 on each front tandem link.
5. Starting at the front of each platform side rail, install a tie-down clevis to the bushings bolted to holes 4, 5, 6, 11, 12, and 13.
6. Install a tie-down clevis to bushings 1, 2, 3, and 4 on each rear tandem link.
7. Starting at the front of the platform, number the clevises bolted to the right side from 1 through 14 and those bolted to the left side from 1A through 14A.
8. Label the tie-down rings according to FM 10-500-2/TO 13C7-1-5.

Figure 7-1. Platform prepared

7-3. Preparing and Positioning Honeycomb

Prepare and position the honeycomb on the platform as shown in Figure 7-2.



- ① Cut two 72- by 36-inch pieces of honeycomb. Center stack 1 flush with the front edge of the platform.
- ② Cut two 72- by 24-inch pieces of honeycomb. Center stack 2 flush with the rear edge of stack 1.
- ③ Cut two 72- by 36-inch pieces of honeycomb. Center stack 3 flush with the rear edge of the platform.

Figure 7-2. Honeycomb placed on platform

7-4. Installing Lifting Slings

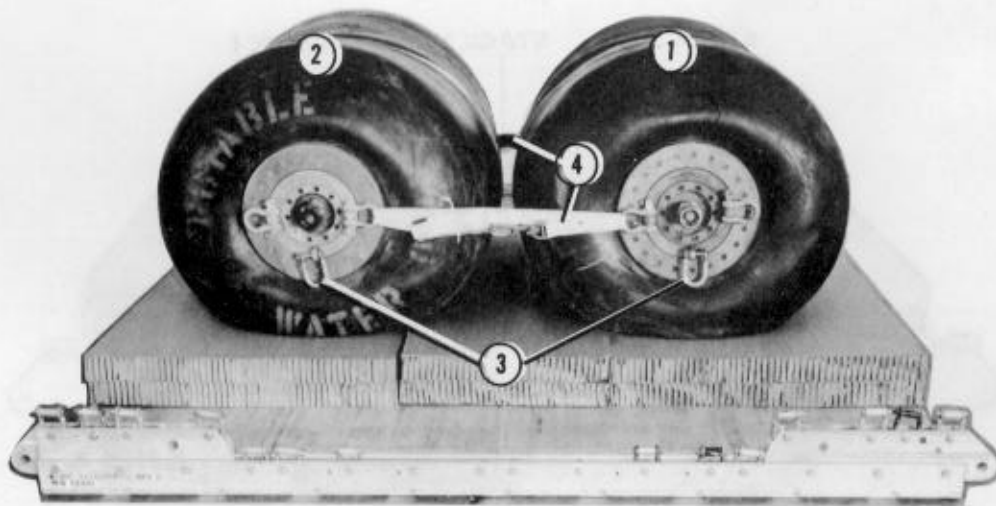
Install the lifting slings to each drum using two 3-foot (2-loop) and two 9-foot (2-loop), type XXVI nylon webbing slings as shown in Figure 4-2.

7-5. Positioning and Lashing Drums Together

Position and lash the drums as described below.

a. *Positioning Drums.* Position the drums on the platform as shown in Figures 7-3 and 7-4.

b. *Lashing Drums Together.* Lash the drums together as shown in Figure 7-3.



① Center a drum on the front pieces of honeycomb as shown above.

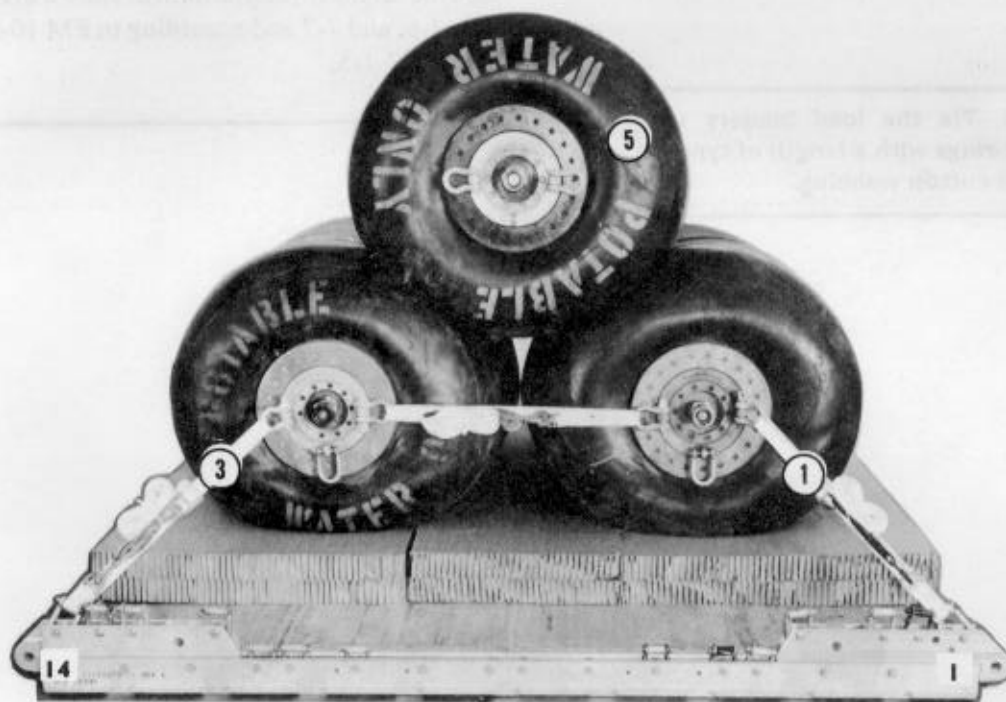
② Center a drum on the rear pieces of honeycomb as shown above.

NOTE: Remove all lifting slings.

③ Bolt a load tie-down clevis to the bottom shackle of each drum.

④ Lash the two drums together with a 15-foot tie-down assembly on each side. Pass the lashing through the inside shackles of the drums on each side.

Figure 7-3. Drums positioned and lashed together



- ① Pass a 15-foot tie-down assembly through clevis 1 and then through the right front shackle of the front drum.
- ② Pass a 15-foot tie-down assembly through clevis 1A and then through the left front shackle of the front drum (not shown).
- ③ Pass a 15-foot tie-down assembly through clevis 14 and then through the right rear shackle of the rear drum.
- ④ Pass a 15-foot tie-down assembly through clevis 14A and then through the left rear shackle of the rear drum (not shown).
- ⑤ Center a drum on top of the first two drums, and remove slings.

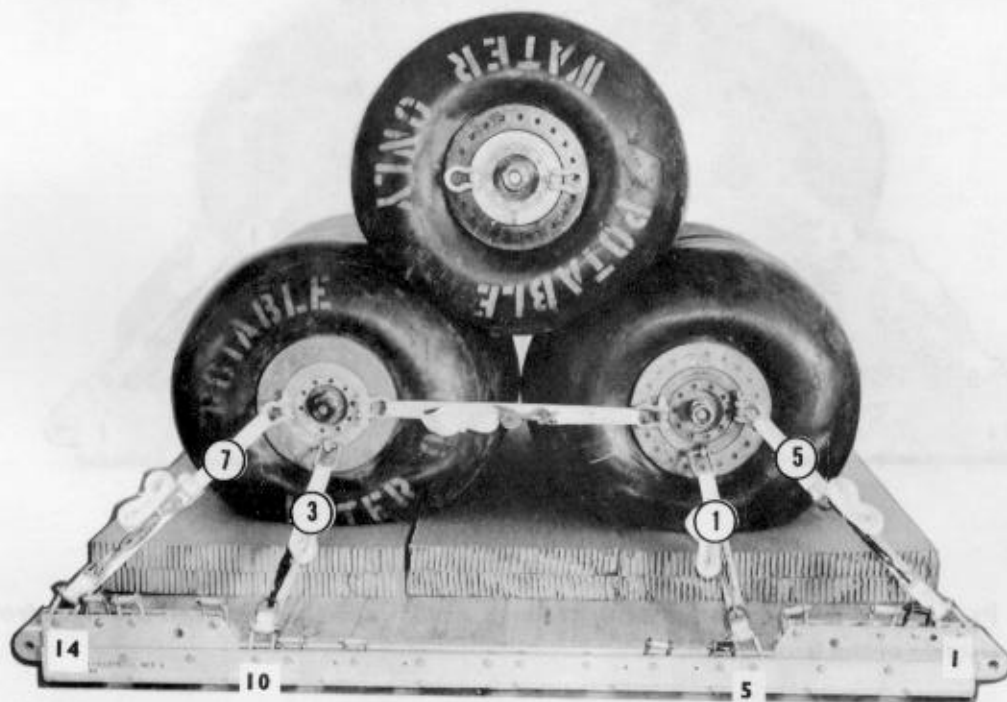
NOTE: Make sure the shackles on the drums are parallel to the platform before installing the lashings.

Figure 7-4. Center drum positioned

7-6. Lashing Drums to the Platform

Use twenty-eight 15-foot tie-down assemblies to lash the drums to the platform as shown in Figures 7-5, 7-6, and 7-7 and according to FM 10-500-2/TO 13C7-1-5.

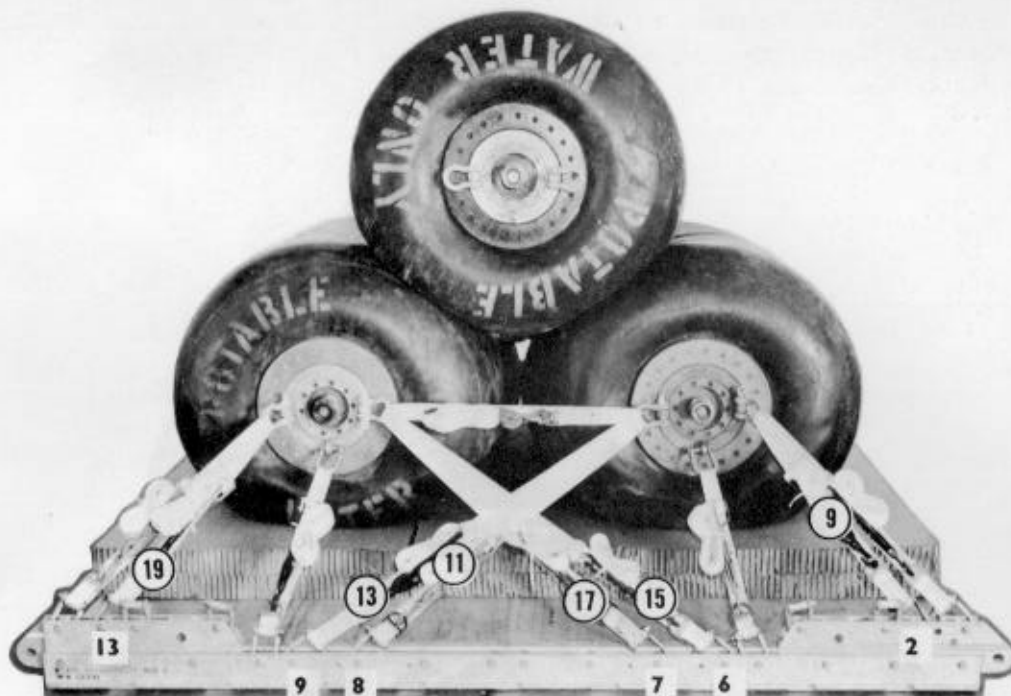
NOTE: Tie the load binders to their D-rings with a length of type I, 1/4-inch cotton webbing.



Lashing Number	Clevis Number	Instructions
1 and 2	5 and 5A	Pass lashing: Through the bottom clevis of the front drum.
3 and 4	10 and 10A	Through the bottom clevis of the rear drum.
*5 and 6	1 and 1A	Through the front shackle of the front drum.
*7 and 8	14 and 14A	Through the rear shackle of the rear drum.

*Lashings were previously installed.

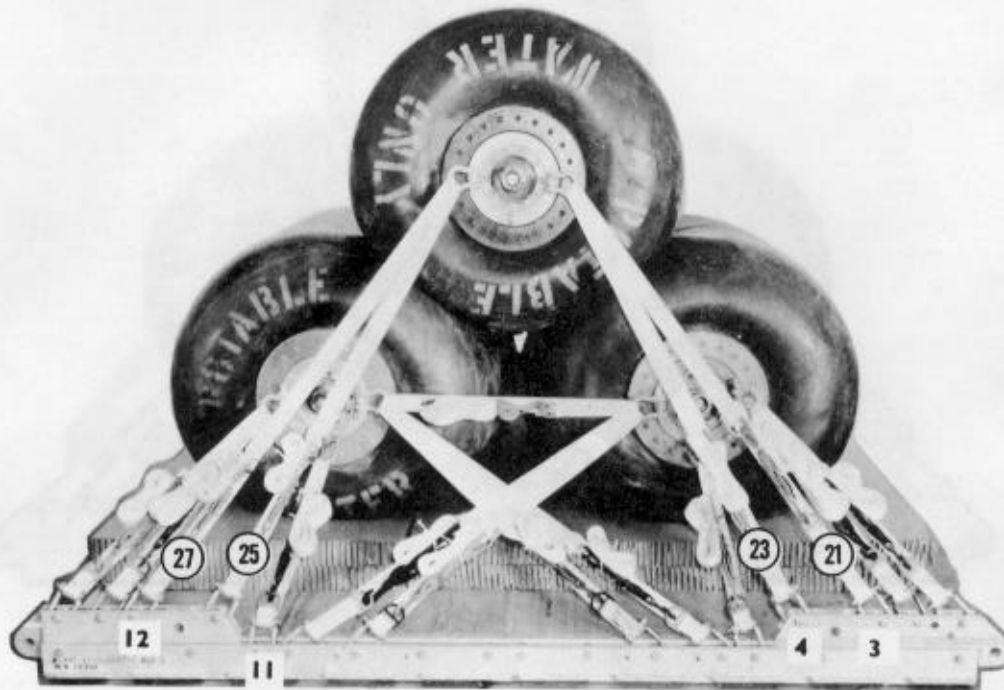
Figure 7-5. Lashings 1 through 8 installed



Lashing Number	Clevis Number	Instructions
9 and 10	2 and 2A	Pass lashing: Through the front shackle of the front drum.
11 and 12	8 and 8A	Through the rear shackle of the front drum.
13 and 14	9 and 9A	Through the rear shackle of the front drum.
15 and 16	6 and 6A	Through the front shackle of the rear drum.
17 and 18	7 and 7A	Through the front shackle of the rear drum.
19 and 20	13 and 13A	Through the rear shackle of the rear drum.

Figure 7-6. Lashings 9 through 20 installed

NOTE: Secure the ends of the lashings with D-rings and load binders according to FM 10-500-2/TO 13C7-1-5.

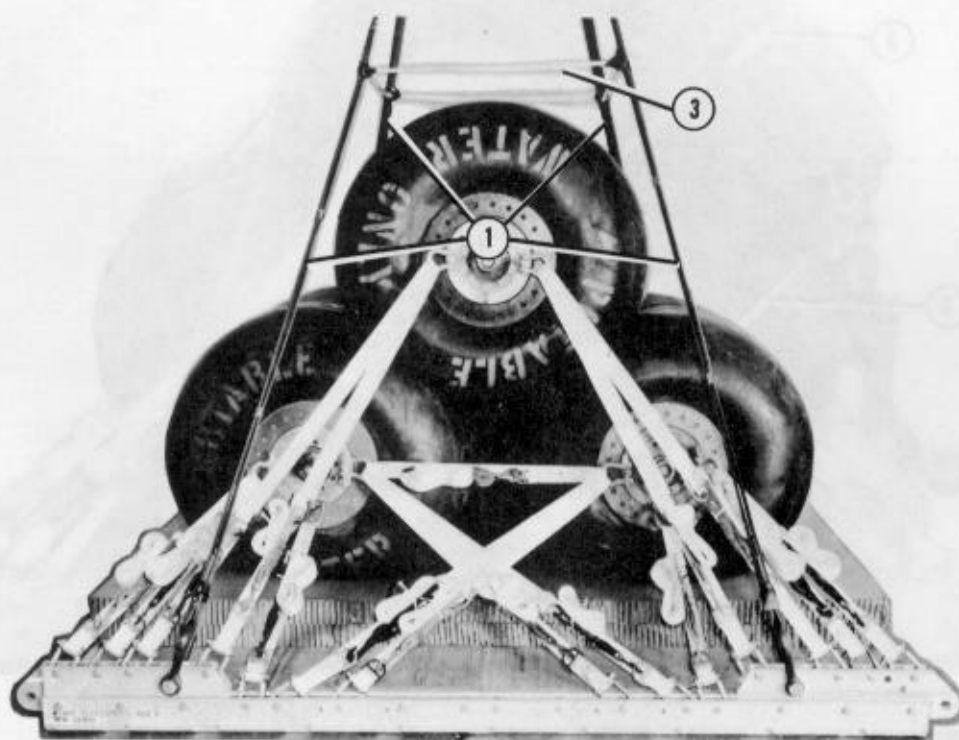


Lashing Number	Clevis Number	Instructions
21 and 22	3 and 3A	Pass lashing: Through the front shackle of the center drum.
23 and 24	4 and 4A	Through the front shackle of the center drum.
25 and 26	11 and 11A	Through the rear shackle of the center drum.
27 and 28	12 and 12A	Through the rear shackle of the center drum.

Figure 7-7. Lashings 21 through 28 installed

7-7. Installing and Safetying Suspension Slings

Install four large suspension clevises and four 12-foot (2-loop), type XXVI nylon webbing slings to the tandem links as shown in Figure 7-8.

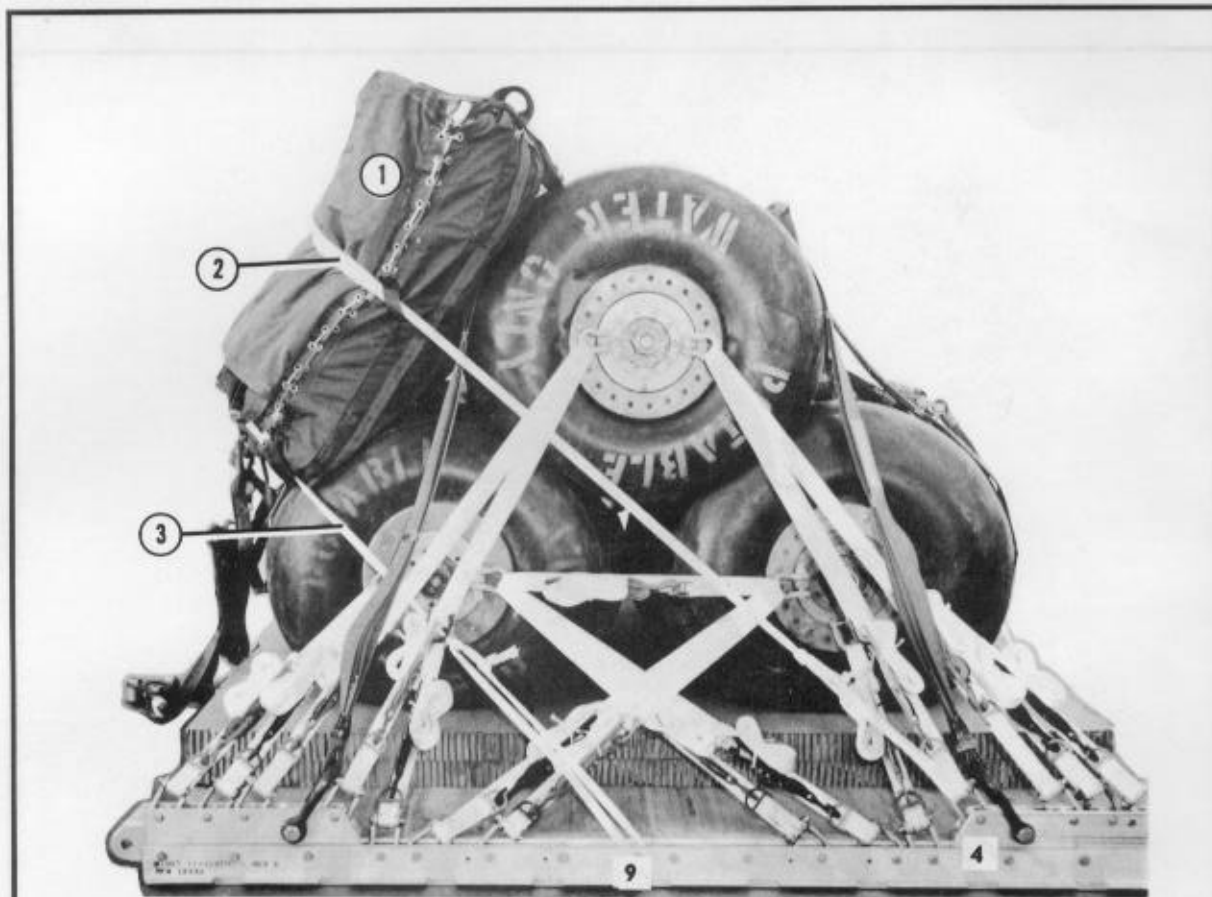


- ① Bolt a 12-foot sling to each tandem link using a large suspension clevis.
- ② Raise the suspension slings to their full length using a lifting provision (not shown).
- ③ Safety the slings with a deadman's tie according to FM 10-500-2/TO 13C7-1-5.

Figure 7-8. Suspension slings installed

7-8. Stowing Cargo Parachutes

Prepare, place, and restrain two G-11B cargo parachutes according to FM 10-500-2/TO 13C7-1-5 and as shown in Figures 7-9 and 7-10.



- ① Place the cargo parachutes on top of the rear drum.

CAUTION

As an exception to FM 10-500-2/TO 13C7-1-5 parachute restraint system, two restraints will be on this load.

- ② Restrain the parachutes according to FM 10-500-2/TO 13C7-1-5 using two lengths of type VIII nylon webbing. Attach one length of webbing to clevises 4 and 4A.
- ③ Attach the second length of webbing as shown above and according to FM 10-500-2/TO 13C7-1-5 to bushings 9 and 9A.

Figure 7-9. Parachute restraint straps installed

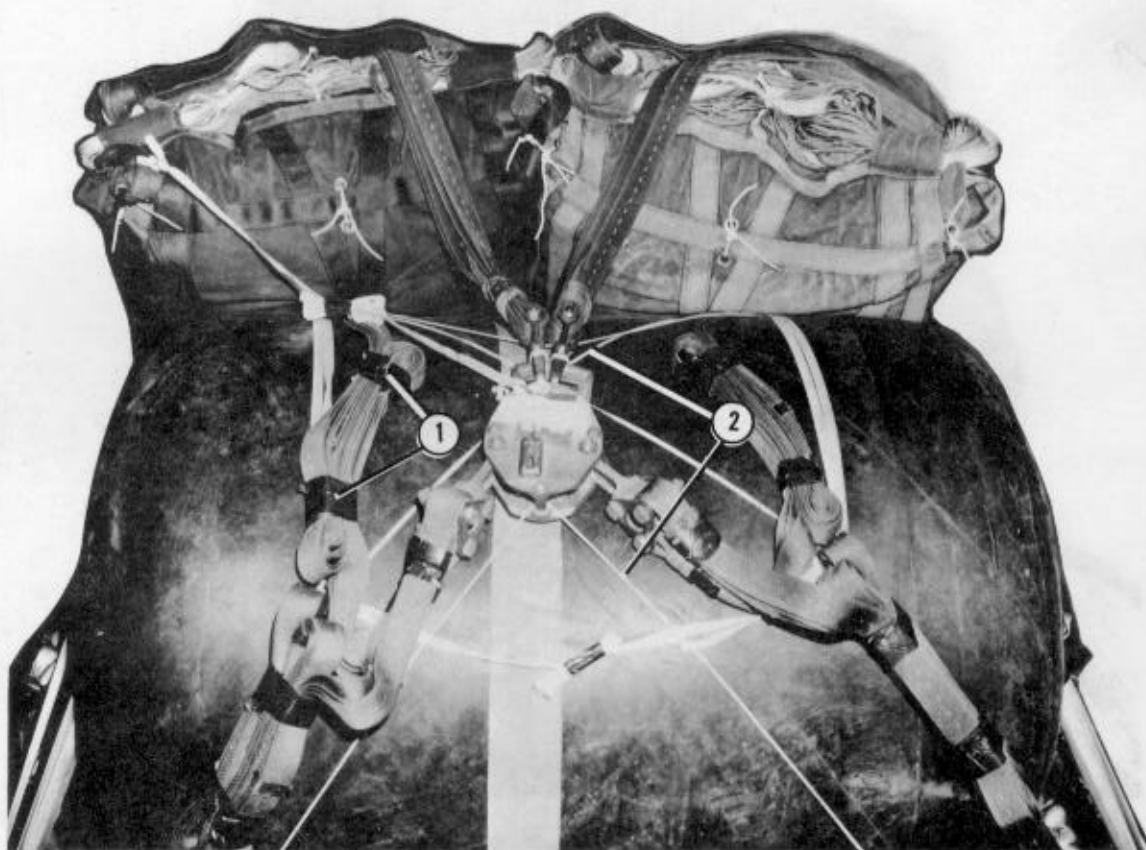


- ① Install two parachute release straps with V-knives according to FM 10-500-2/TO 13C7-1-5.

Figure 7-10. Parachute release straps installed

7-9. Installing Parachute Release System

Prepare and attach an M-1 cargo parachute release according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 7-11.

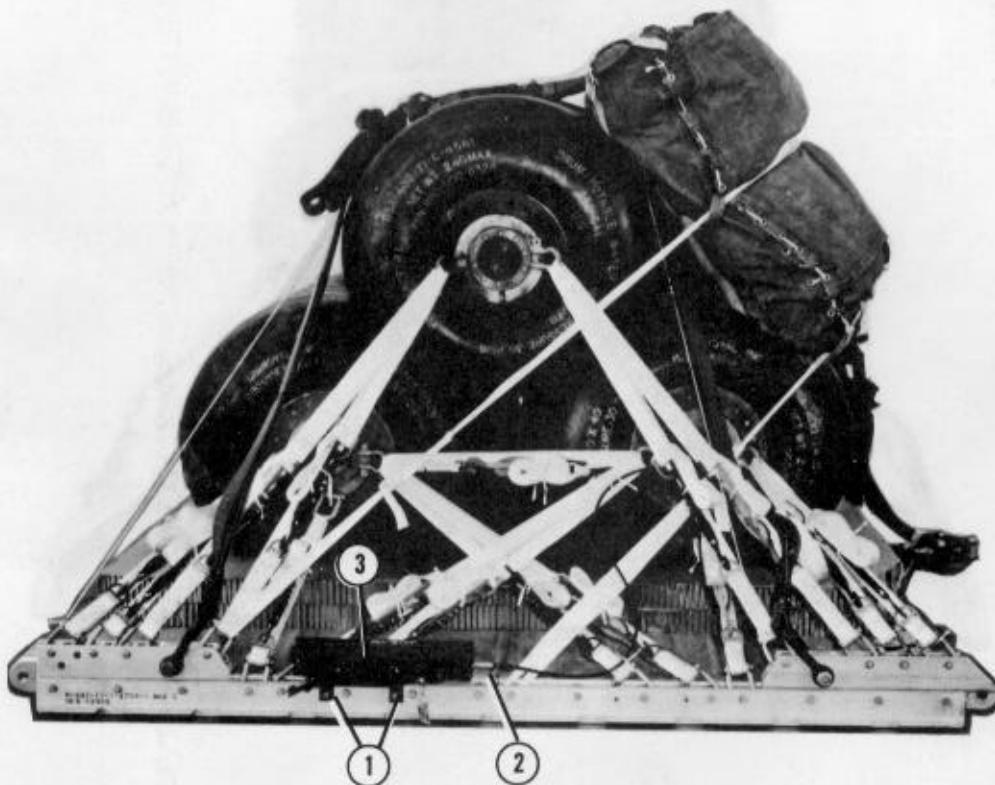


- ① Place the M-1 cargo parachute release on top of the drum as shown, and attach it according to FM 10-500-2/TO 13C7-1-5. S-fold and tape or tie the slings with type I, 1/4-inch cotton webbing.
- ② Secure the M-1 cargo parachute release according to FM 10-500-2/TO 13C7-1-5 with a length of type III nylon cord.

Figure 7-11. Parachute release attached

7-10. Installing Extraction System

Install the EFTC extraction system according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 7-12.



- ① Install the actuator mounting brackets to the front EFTC mounting holes on the left platform side rail.
- ② Install a 12-foot cable to the actuator assembly.
- ③ Attach the actuator assembly to the mounting brackets.

Figure 7-12. EFTC installed



- ④ Secure the cable to the inside of the lashings and tie-down ring D4 with type I, 1/4-inch cotton webbing.
- ⑤ Use a 9-foot (2-loop), type XXVI nylon webbing sling for the deployment line. S-fold the excess line, and tape or tie it with type I, 1/4-inch cotton webbing.

Figure 7-12. EFTC installed (continued)

7-11. Placing Extraction Parachute

Place the extraction parachute as described below.

a. *C-130 Aircraft.* Place a 22-foot cargo extraction parachute and a 60-foot (3-loop), type XXVI nylon webbing extraction line on the load for installation in the aircraft.

b. *C-141 Aircraft.* Place a 22-foot cargo extraction parachute and a 140-foot (3-loop), type XXVI nylon webbing extraction line on the load for installation in the aircraft.

CAUTION

The extraction line will be a continuous 140-foot (3-loop), type XXVI nylon webbing extraction line. Shorter lines will not be used to form the 140-foot extraction line.

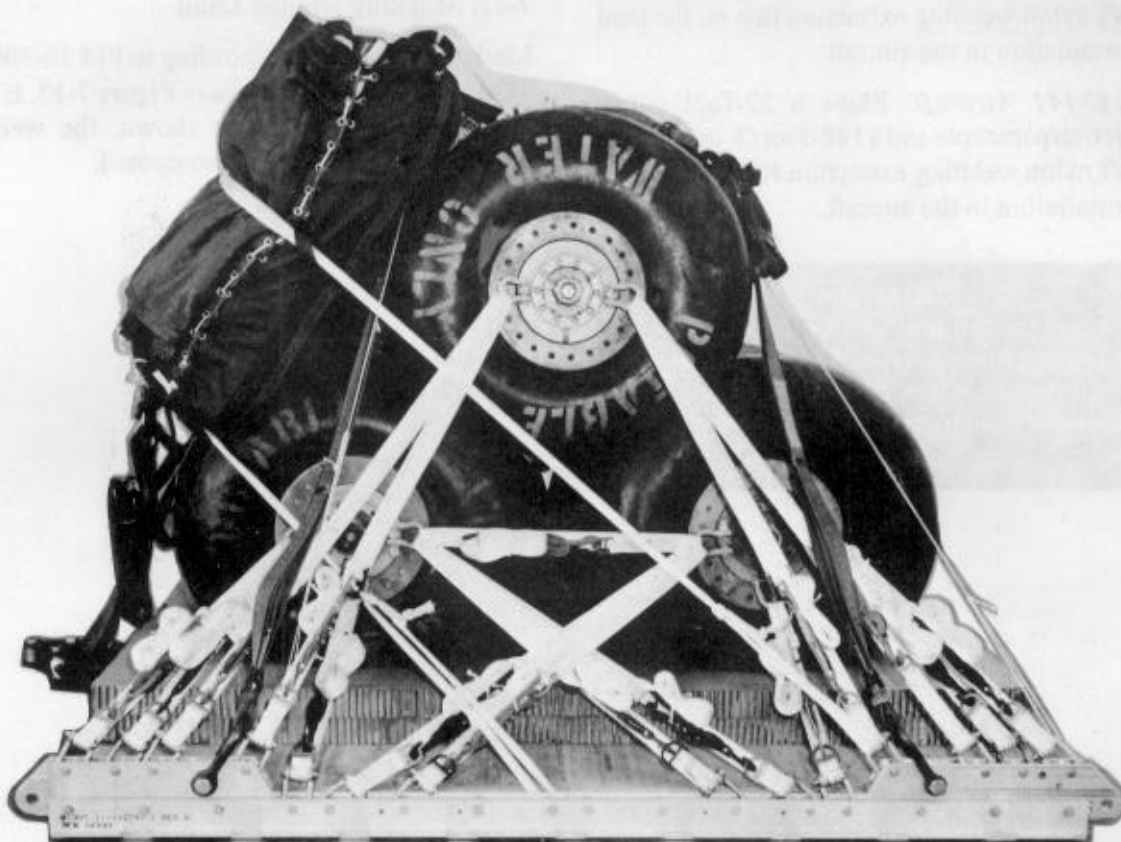
NOTE: Sling/extraction line bags must be used.

7-12. Marking Rigged Load

Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 7-13. If the load varies from the one shown, the weight, height, and CB must be recomputed.

CAUTION

Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before the load leaves the rigging site.



RIGGED LOAD DATA

Weight:	Load shown	8,300 pounds
	Maximum load allowed	9,000 pounds
Height	.....	77 inches
Width	.....	108 inches
Length	.....	96 inches
Overhang:	Front	none
	Rear	none
CB (from front edge of platform)	.....	50 inches
Extraction System	.....	EFTC

Figure 7-13. Three 250-gallon water drums rigged on an 8-foot, type V platform for low-velocity airdrop

7-13. Equipment Required

Use the equipment listed in Table 7-1 to rig this load.

Table 7-1. Equipment required for rigging three 250-gallon water drums for low-velocity airdrop on an 8-foot, type V platform

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal	As required
	Clevis, suspension:	
4030-00-678-8562	3/4-in (medium)	2
4030-00-090-5354	1-in (large)	5
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
	Coupling:	
	Airdrop, extraction force transfer w cable:	
1670-00-434-5783	12-ft	1
	Cover:	
1670-00-360-0328	Clevis, large	2
1670-00-360-0329	Link assembly, type IV	1
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
	Link assembly:	
	Two-point:	
5306-00-435-8994	Bolt, 1-in diam, 4-in long	(2)
5310-00-232-5165	Nut, 1-in	(2)
1670-00-003-1953	w/Plate, side, 3 3/4-in	(2)
5365-00-007-3414	Spacer, large	(2)
1670-00-783-5988	Type IV	1
1670-00-753-3928	Pad, energy-dissipating, honeycomb,	
	3- by 36- by 96-in:	6
	24- by 72-in	(2)
	36- by 72-in	(4)
	Parachute:	
	Cargo:	
1670-01-016-7841	G-11B	2
	Cargo extraction:	
1670-01-063-3716	22-ft	1
	Platform, AD, type V, 8-ft:	1
	Bracket:	
1670-01-162-2375	Inside EFTA	(1)
1670-01-162-2374	Outside EFTA	(1)
1670-01-162-2372	Clevis assembly (type V)	(32)
1670-01-162-2376	Extraction bracket assembly	(1)
1670-01-162-2381	Tandem link (multipurpose)	(4)

Table 7-1. Equipment required for rigging three 250-gallon water drums for low-velocity airdrop on an 8-foot, type V platform (continued)

National Stock Number	Item	Quantity
1670-01-097-8816	Release, cargo parachute: M-1	1
1670-01-062-6304	Sling, cargo airdrop: For deployment line: 9-ft (2-loop), type XXVI nylon webbing	1
1670-01-062-6313	For extraction: 60-ft (3-loop), type XXVI nylon webbing (Use w 22-ft parachute for C-130)	1
1670-01-107-7651	140-ft (3-loop), type XXVI nylon webbing (Use w 22-ft parachute for C-141)	1
1670-01-062-6301	For lifting and for suspension: 3-ft (2-loop), type XXVI nylon webbing	2
1670-01-062-6304	9-ft (2-loop), type XXVI nylon webbing	2
1670-01-062-6303	12-ft (2-loop), type XXVI nylon webbing	4
1670-01-062-6302	For riser extensions: 20-ft (2-loop), type XXVI nylon webbing	2
1670-00-998-0116	Strap, parachute release w V-knife	2
7510-00-266-5016	Tape, adhesive, PSA, cloth back, 2-in	As required
7510-00-266-6710	Tape, masking	As required
1670-00-937-0271	Tie-down assembly, 15-ft	30
8305-00-268-2411	Webbing: Cotton, 1/4-in, type I	As required
8305-00-082-5752	Nylon: Tubular: 1/2-in, natural	As required
8305-00-268-2453	1/2-in, olive drab	As required
8305-00-263-3591	Type VIII	As required

Section II

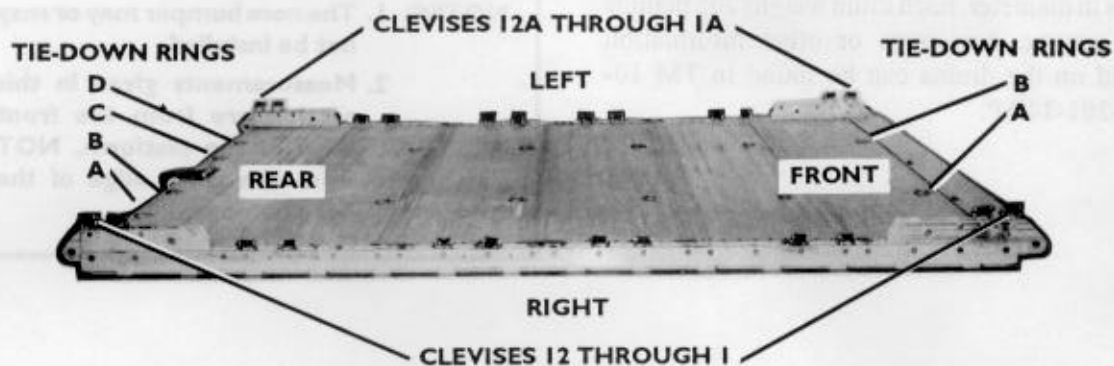
RIGGING THREE DRUMS ON A 12-FOOT PLATFORM**7-14. Description of Load**

Three drums are rigged on a 12-foot, type V platform with two G-11B cargo parachutes. Filled with 240 gallons of potable water, each drum weighs 2,197 pounds and is 60 inches long and 40 inches in diameter. Each drum weighs 205 pounds when empty. Any parts or other information needed on the drums can be found in TM 10-8110-201-14&P.

7-15. Preparing Platform

Prepare a 12-foot, type V platform using four tandem links and 24 clevises as shown in Figure 7-14.

- NOTES:**
1. The nose bumper may or may not be installed.
 2. Measurements given in this section are from the front edge of the platform, **NOT** from the front edge of the nose bumper.



Step:

1. Inspect, or assemble and inspect, the platform according to TM 10-1670-268-20&P/TO 13C7-52-22.
2. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3.
3. Install a tandem link on the rear of each platform side rail using holes 22, 23, and 24.
4. Install a tie-down clevis on bushings 1 and 2 on each front tandem link.
5. Starting at the front of each platform side rail, install a tie-down clevis to the bushings bolted to holes 5, 6, 10, 11, 14, 15, 19, and 20.
6. Install a tie-down clevis to bushings 3 and 4 on each rear tandem link.
7. Starting at the front of the platform, number the clevises bolted to the right side from 1 through 12 and those bolted to the left side from 1A through 12A.
8. Label the tie-down rings according to FM 10-500-2/TO 13C7-1-5.

Figure 7-14. Platform prepared

7-16. Preparing and Positioning Honeycomb

Prepare and position the honeycomb on the platform as shown in Figure 7-15.

7-17. Installing Lifting Slings

Install the lifting slings to each drum using two 3-foot (2-loop) and two 9-foot (2-loop), type XXVI nylon webbing slings as shown in Figure 4-2.

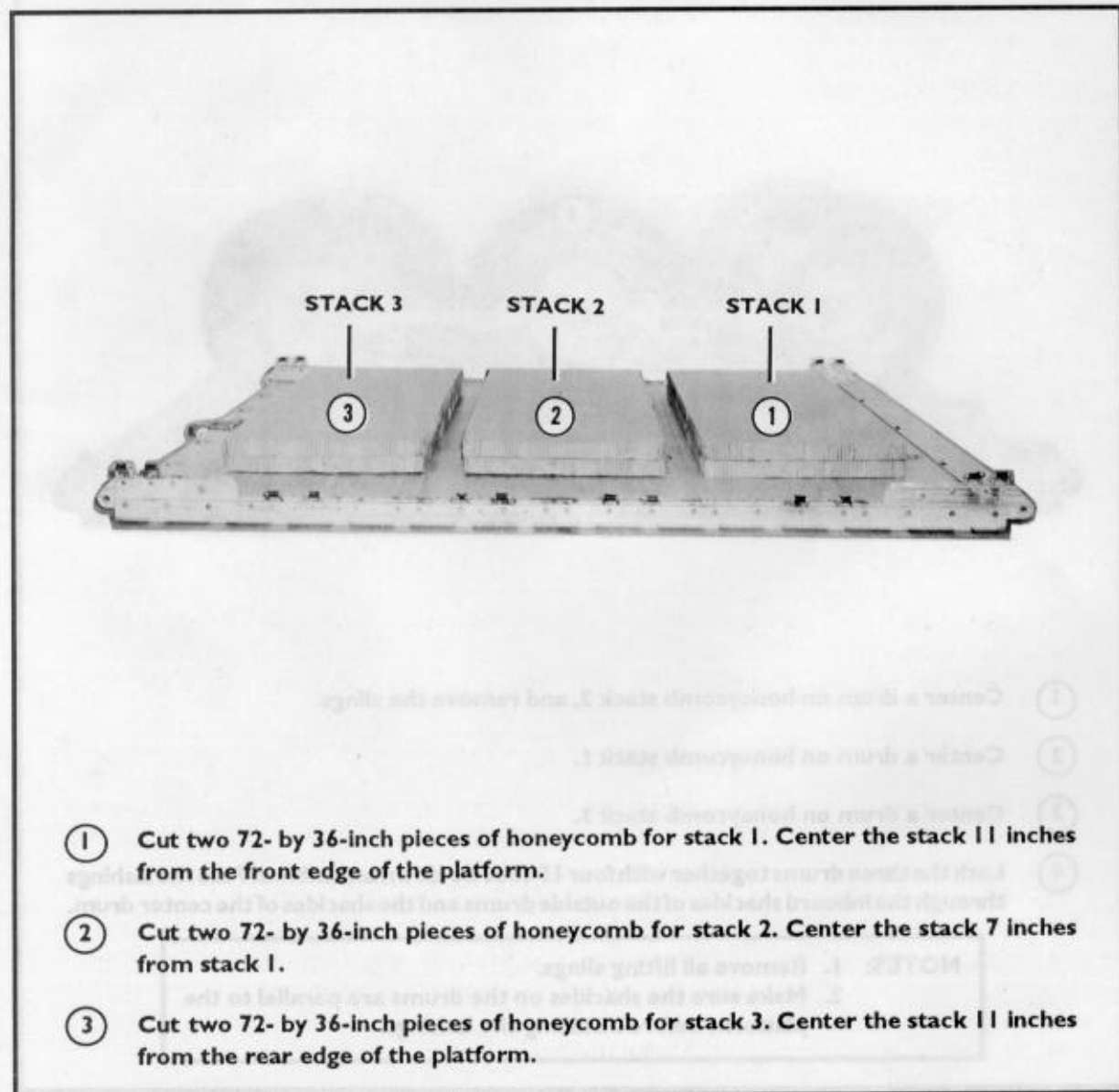


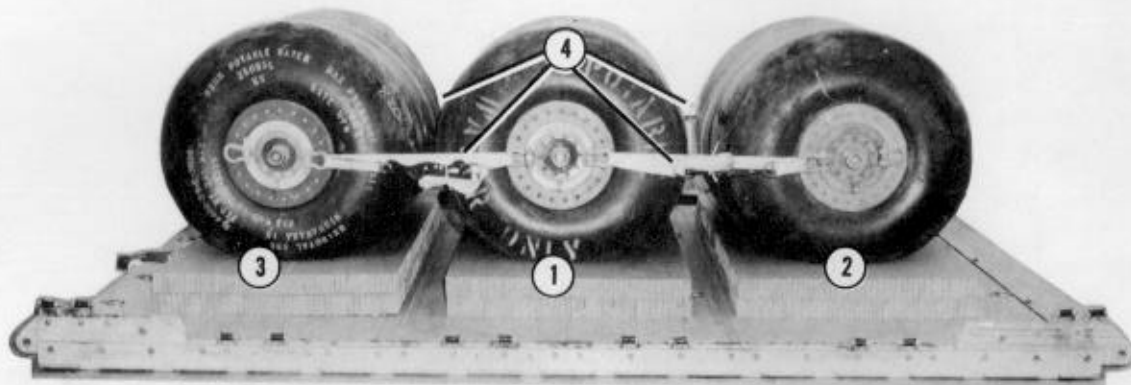
Figure 7-15. Honeycomb placed on platform

7-18. Positioning and Lashing Drums Together

Position and lash the drums as described below.

a. Positioning Drums. Position the drums on the platform as shown in Figure 7-16.

b. Lashing Drums Together. Lash the drums together as shown in Figure 7-16.



- ① Center a drum on honeycomb stack 2, and remove the slings.
- ② Center a drum on honeycomb stack 1.
- ③ Center a drum on honeycomb stack 3.
- ④ Lash the three drums together with four 15-foot tie-down assemblies. Pass the lashings through the inboard shackles of the outside drums and the shackles of the center drum.

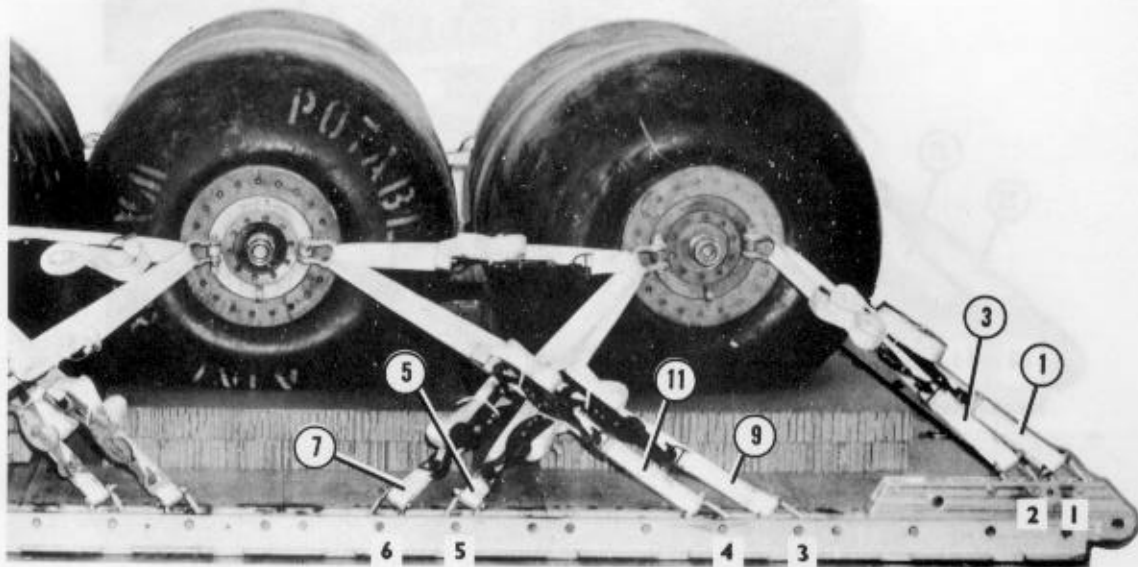
NOTES: 1. Remove all lifting slings.
2. Make sure the shackles on the drums are parallel to the platform before installing the lashings.

Figure 7-16. Drums positioned and lashed together

7-19. Lashing Drums to the Platform

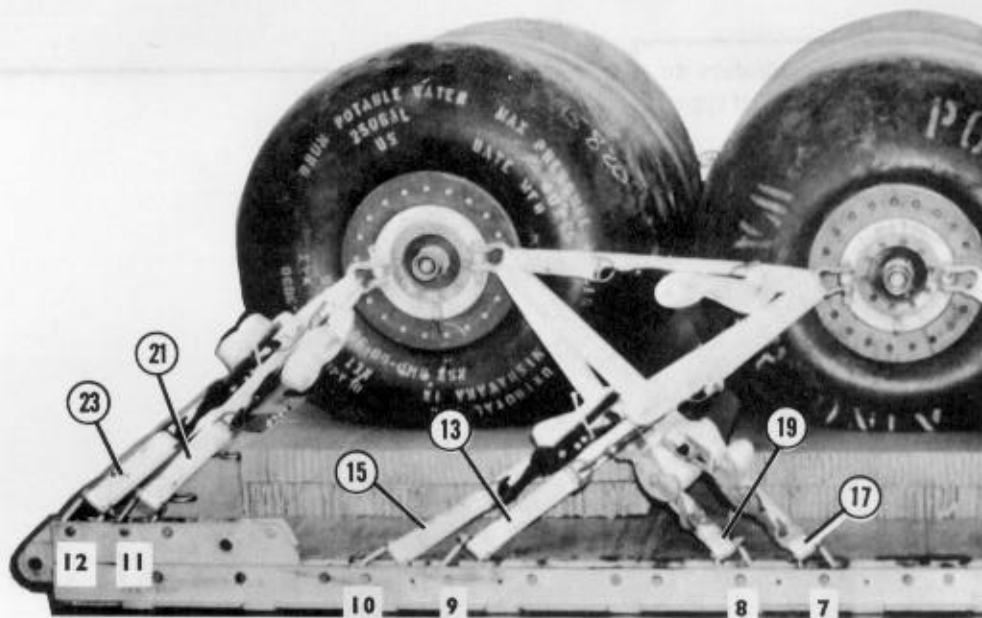
Use twenty-four 15-foot tie-down assemblies to lash the drums to the platform as shown in Figures 7-17 and 7-18 and according to FM 10-500-2/TO 13C7-1-5.

NOTE: Tie the load binders to their D-rings with a piece of type I, 1/4-inch cotton webbing.



Lashing Number	Clevis Number	Instructions
1 and 2	1 and 1A	Pass lashing: FIRST DRUM Through the front shackle of the first drum.
3 and 4	2 and 2A	Through the front shackle of the first drum.
5 and 6	5 and 5A	Through the rear shackle of the first drum.
7 and 8	6 and 6A	Through the rear shackle of the first drum.
9 and 10	3 and 3A	SECOND DRUM Through the front shackle of the second drum.
11 and 12	4 and 4A	Through the front shackle of the second drum.

Figure 7-17. Lashings 1 through 12 installed

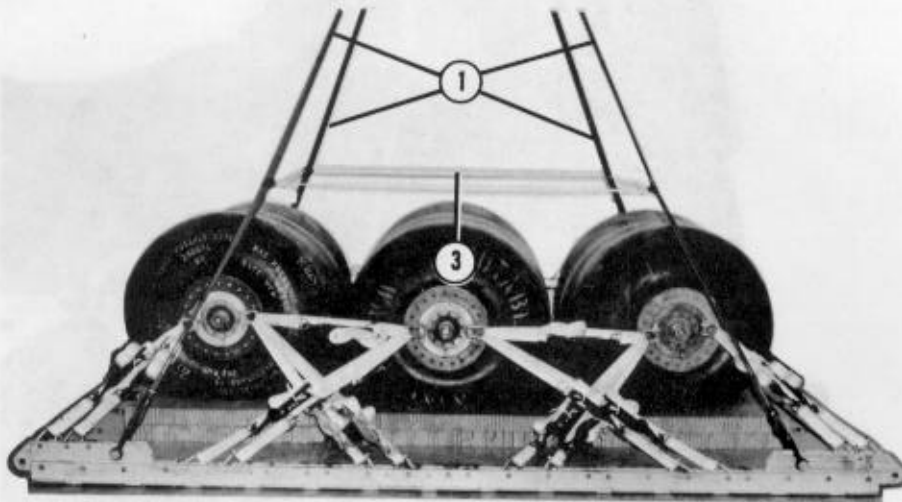


Lashing Number	Clevis Number	Instructions
13 and 14	9 and 9A	Pass lashing: SECOND DRUM (continued) Through the rear shackle of the second drum.
15 and 16	10 and 10A	Through the rear shackle of the second drum.
17 and 18	7 and 7A	THIRD DRUM Through the front shackle of the third drum.
19 and 20	8 and 8A	Through the front shackle of the third drum.
21 and 22	11 and 11A	Through the rear shackle of the third drum.
23 and 24	12 and 12A	Through the rear shackle of the third drum.

Figure 7-18. Lashings 13 through 24 installed

7-20. Installing and Safetying Suspension Slings

Install four large suspension clevises and four 12-foot (2-loop), type XXVI nylon webbing slings to the tandem links as shown in Figure 7-19.

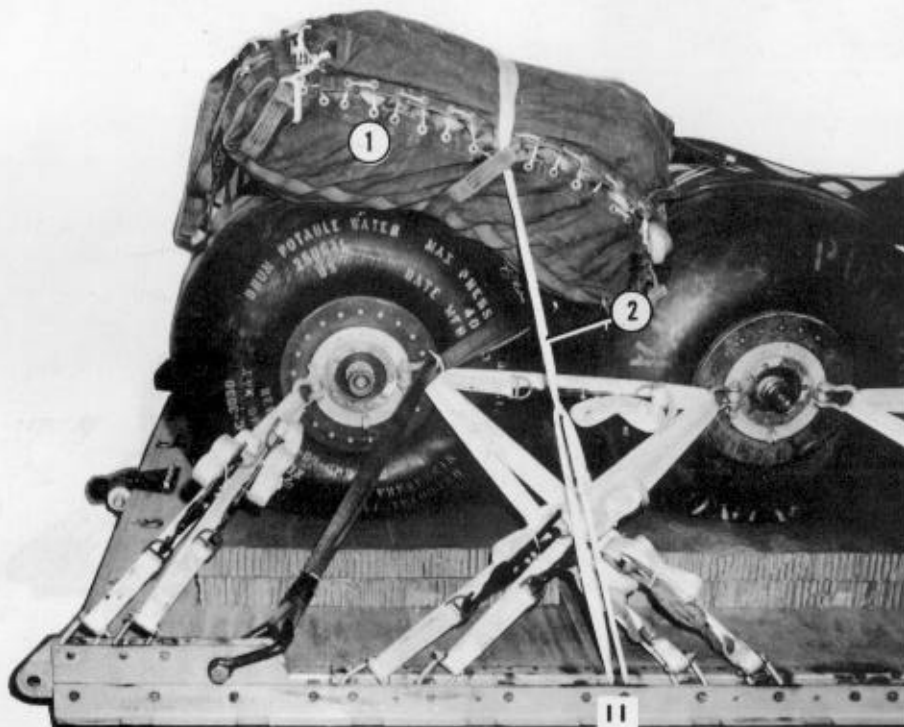


- ① Bolt a 12-foot sling to each tandem link using a large suspension clevis.
- ② Raise the suspension slings to their full length using a lifting provision (not shown).
- ③ Safety the slings with a deadman's tie according to FM 10-500-2/TO 13C7-1-5.
- ④ Secure each sling to the inboard shackles of the first and third drums with a one turn single length of type I, 1/4-inch cotton webbing (not shown).

Figure 7-19. Suspension slings installed

7-21. Stowing Cargo Parachutes

Prepare, place, and restrain two G-11B cargo parachutes according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 7-20.



- ① Place the cargo parachutes on top of the rear drum.
- ② Restrain the parachutes according to FM 10-500-2/TO 13C7-1-5 using a length of type VIII nylon webbing. Attach a length of webbing to clevises 11 and 11A according to FM 10-500-2/TO 13C7-1-5.

Figure 7-20. Parachute restraint strap installed



- ① Install a parachute release strap according to FM 10-500-2/TO 13C7-1-5.

Figure 7-21. Parachute release strap installed

7-22. Installing Parachute Release System

Prepare and attach an M-1 cargo parachute release according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 7-22.

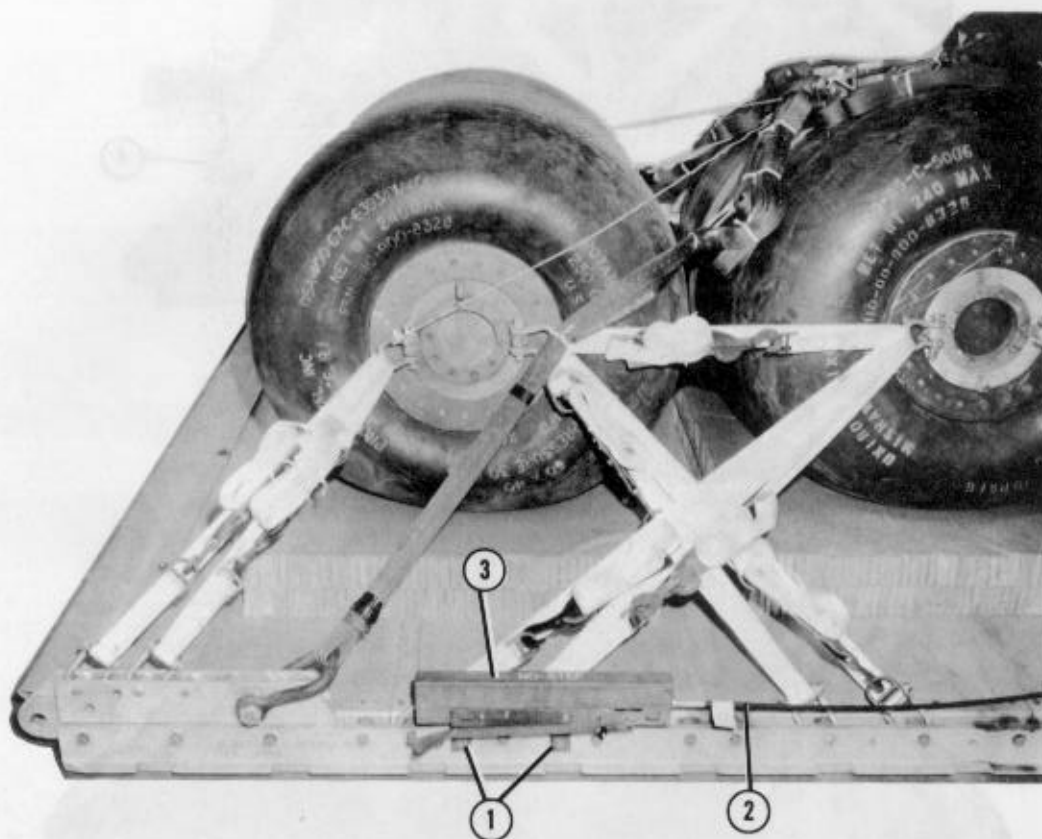


- ① Place the M-1 cargo parachute release on top of the drum as shown, and attach it according to FM 10-500-2/TO 13C7-1-5. S-fold and tape or tie the slings with type I, 1/4-inch cotton webbing.
- ② Secure the M-1 cargo parachute release according to FM 10-500-2/TO 13C7-1-5 with a length of type III nylon cord.

Figure 7-22. Parachute release attached

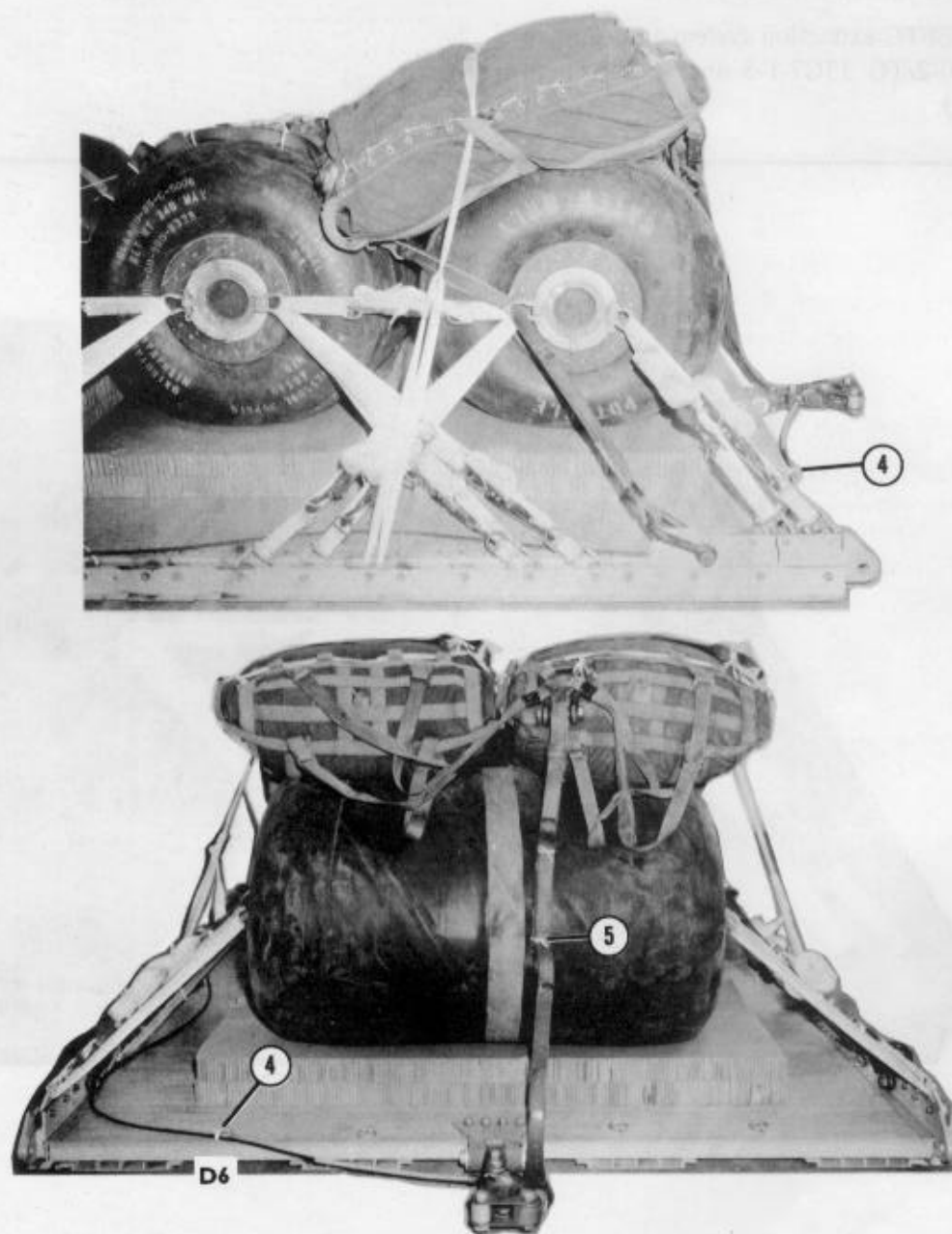
7-23. Installing Extraction System

Install the EFTC extraction system according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 7-23.



- ① Install the actuator mounting brackets to the front EFTC mounting holes on the left platform side rail.
- ② Install a 12-foot cable to the actuator assembly.
- ③ Attach the actuator assembly to the mounting brackets.

Figure 7-23. EFTC installed



- ④ Secure the cable to tie-down ring D6 with type I, 1/4-inch cotton webbing.
- ⑤ Use a 9-foot (2-loop), type XXVI nylon webbing sling for the deployment line. S-fold the excess line, and tape or tie it with type I, 1/4-inch cotton webbing.

Figure 7-23. EFTC installed (continued)

7-24. Placing Extraction Parachute

Place the extraction parachute as described below.

a. *C-130 Aircraft.* Place a 22-foot cargo extraction parachute and a 60-foot (3-loop), type XXVI nylon webbing extraction line on the load for installation in the aircraft.

b. *C-141 Aircraft.* Place a 22-foot cargo extraction parachute and a 140-foot (3-loop), type XXVI nylon webbing extraction line on the load for installation in the aircraft.

CAUTION

The extraction line will be a continuous 140-foot (3-loop), type XXVI nylon webbing extraction line. **DO NOT** use shorter lines to form the 140-foot extraction line.

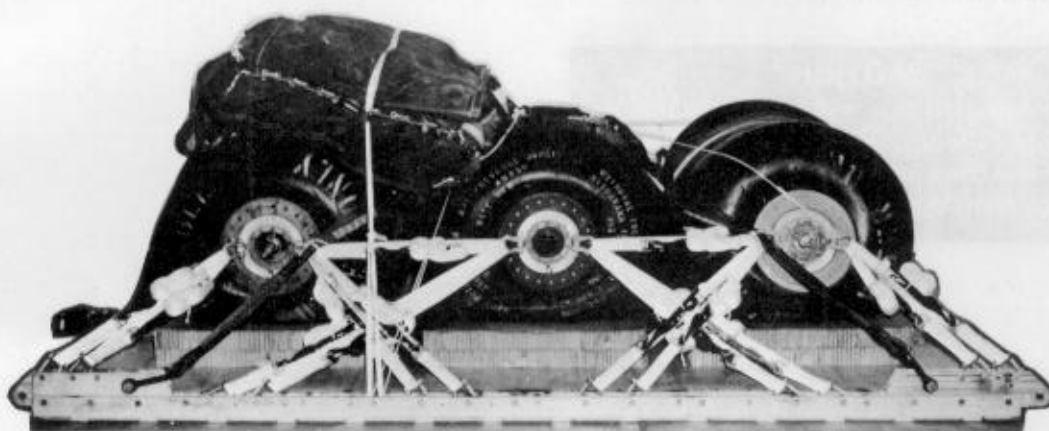
NOTE: Sling/extraction line bags must be used.

7-25. Marking Rigged Load

Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 7-24. If the load varies from the one shown, the weight, height, and CB must be recomputed.

CAUTION

Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before the load leaves the rigging site.

**RIGGED LOAD DATA**

Weight:	Load shown	8,760 pounds
	Maximum load allowed	9,500 pounds
Height	60 inches	
Width	108 inches	
Length	162 inches	
Overhang:	Front	none
	Rear	none
CB (from front edge of platform)		73 inches
Extraction System		EFTC

Figure 7-24. Three 250-gallon water drums rigged on a 12-foot, type V platform for low-velocity airdrop

7-26. Equipment Required

Use the equipment listed in Table 7-2 to rig this load.

Table 7-2. Equipment required for rigging three 250-gallon water drums for low-velocity airdrop on a 12-foot, type V platform

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal	As required
	Clevis, suspension:	
4030-00-678-8562	3/4-in (medium)	2
4030-00-090-5354	1-in (large)	5
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
	Coupling:	
	Airdrop, extraction force transfer w cable:	
1670-00-434-5783	12-ft	1
	Cover:	
1670-00-360-0328	Clevis, large	2
1670-00-360-0329	Link assembly, type IV	1
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
	Link assembly:	
	Two-point:	1
5306-00-435-8994	Bolt, 1-in diam, 4-in long	(2)
5310-00-232-5165	Nut, 1-in, hexagon	(2)
1670-00-003-1953	Plate, side, 3 3/4-in	(2)
5365-00-007-3414	Spacer, large	(2)
1670-00-783-5988	Type IV	1
1670-00-753-3928	Pad, energy-dissipating, honeycomb,	
	3- by 36- by 96-in:	6
	36- by 72-in	(6)
	Parachute:	
	Cargo:	
1670-01-016-7841	G-11B	2
	Cargo extraction:	
1670-01-063-3716	22-ft	1
	Platform, AD, type V, 12-ft:	1
	Bracket:	
1670-01-162-2375	Inside EFTA	(1)
1670-01-162-2374	Outside EFTA	(1)
1670-01-162-2372	Clevis, assembly (type V)	(44)
1670-01-162-2376	Extraction bracket assembly	(1)
1670-01-162-2381	Tandem link (multipurpose)	(4)
	Release, cargo parachute:	
1670-01-097-8816	M-1	1

Table 7-2. Equipment required for rigging three 250-gallon water drums for low-velocity airdrop on a 12-foot, type V platform (continued)

National Stock Number	Item	Quantity
	Sling, cargo airdrop:	
	For deployment line:	
1670-01-062-6304	9-ft (2-loop), type XXVI nylon webbing	1
	For extraction:	
1670-01-062-6313	60-ft (3-loop), type XXVI nylon webbing (Use w 22-ft parachute for C-130)	1
1670-01-107-7651	140-ft (3-loop), type XXVI nylon webbing (Use w 22-ft parachute for C-141)	1
	For lifting and for suspension:	
1670-01-062-6301	3-ft (2-loop), type XXVI nylon webbing	2
1670-01-062-6304	9-ft (2-loop), type XXVI nylon webbing	2
1670-01-062-6303	12-ft (2-loop), type XXVI nylon webbing	4
	For riser extensions:	
1670-01-062-6302	20-ft (2-loop), type XXVI nylon webbing	2
	Strap, parachute release	
1670-00-998-0116	w/V-knife or	1
1670-00-998-5116	w/fastener and knife (guillotine)	1
7510-00-266-5016	Tape, adhesive, PSA, cloth back, 2-in	As required
7510-00-266-6710	Tape, masking, 2-in	As required
1670-00-937-0271	Tie-down assembly, 15-ft	28
	Webbing:	
8305-00-268-2411	Cotton, 1/4-inch, type I	As required
	Nylon:	
	Tubular:	
8305-00-082-5752	1/2-in, natural	As required
8305-00-268-2453	1/2-in, olive drab	As required
8305-00-263-3591	Type VIII	As required

GLOSSARY

ACB attitude control bar	HQ headquarters
AD airdrop	IL Illinois
AFB Air Force base	in inch
AFR Air Force regulation	LAPE low-altitude parachute extraction
AFTO Air Force technical order	LAPES low-altitude parachute extraction system
ALC Air Logistics Center	lb pound
AMC Air Mobility Command	no number
ARNG Army National Guard	NSN national stock number
attn attention	PEFTC platform extraction force transfer coupling
CB center of balance	PSA pressure sensitive adhesive
d penny	qty quantity
DA Department of the Army	rqr required
DC District of Columbia	SL/CS static line/connector strap
DD Department of Defense	TM technical manual
diam diameter	TO technical order
ea each	TRADOC US Army Training and Doctrine Command
EFTA extraction force transfer actuator	TX Texas
EFTC extraction force transfer coupling	US United States (of America)
FM field manual	USAR United States Army Reserve
FMFM Fleet Marine Force Manual	VA Virginia
ft foot/feet	w with
gal gallon	yd yard
GPM gallons per minute	

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3 JUNE 1985

By Order of the Secretaries of the Army and the Air Force:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

DONALD J. DELANDRO
Brigadier General, United States Army
The Adjutant General

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